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VOLUME XXIX JULY–AUGUST, 1955 NUMBER 4

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MAX NEUBURGER

December 8, 1868–March 15, 1955

ROBERT ROSENTHAL*

Medicine suffered an irreparable loss in the death of Dr. Max Neuburger, the dean of medical historians who passed away on March 15 in Vienna, Austria, at the age of 86. He was born and educated in Vienna, and there he reached the height of fame in the field of medical history as writer, editor, and teacher. He died in the same city after an exile in London of almost 10 years and a sojourn in America of 4 years. Although broken in health and almost blind during his last years, his interest in history of medicine continued to the very end.

Neuburger started his medical studies at the University of Vienna at an auspicious time—the period of the famous "Third Vienna Medical School." Practically all his teachers were of the highest caliber—men like Billroth, Bamberger, Hyrtl, Meynert, Krafft-Ebing, Benedikt, Nothnagel (whose biography he later wrote), and Pollitzer, to mention just a few.

*Dr. Rosenthal became a pupil of Professor Neuburger at the end of World War I and remained a life-long friend. He visited Professor Neuburger in 1948 in Buffalo and continued correspondence with him almost to the time of his death.

Tributes to Max Neuburger on the occasion of his 75th birthday, including a bibliography compiled by Dr. Solomon R. Kagan, appeared in this *Bulletin*, 1943, vol. 14, pp. 417-448. A short editorial honoring Professor Neuburger on his 80th birthday was published *ibid.*, 1948, vol. 22, pp. 727-729.

He was particularly influenced by Theodor Puschmann, a teacher who understood how to stimulate Neuburger's interest in the history of medicine and who influenced him to continue the study of history and philosophy. It was no doubt with Puschmann's encouragement that Neuburger published his first three articles a year before he graduated from the medical school.

Neuburger was early attracted to neurology and psychiatry, and after serving a number of years under Moriz Benedikt, he establshed himself as a neurologist. A number of his early publications deal with neurological subjects. It is not surprising that his historical interests led him to investigate neuro-psychology from an historical standpoint. One early result of this interest was the publication, in 1897, of " Die historische Entwicklung der experimentellen Gehirn und Rückenmarksphysiologie vor Flourens," which is still considered a classic.

In 1898 he received the *venia legendi* in the history of medicine at the University of Vienna with the title of *Privatdozent*. It took a great deal of courage at that time for a young man to pioneer in a field that was anything but promising from a material point of view. More and more he concentrated on medical history, although he did not completely give up his private practice until 1914. In 1904 he became " extraordinary " professor of the history of medicine, succeedng his teacher Puschmann. By this time he had demonstrated his ability as a medico-historian by publishing as associate editor (with Pagel) the *Handbuch der Geschichte der Medizin*, to which he also made substantial original contributions. In 1917 he became full professor, and in the same year he received his Ph. D. degree.

One of Neuburger's outstanding achievements is the medico-historical Museum at the University of Vienna. It developed from small beginnings in a cramped space behind the auditorium of von Noorden's (later Wenckebach's) Clinic and Neuburger himself donated much of the early collection. In 1920 it was transferred to two rooms in the Josephinum, the building of the defunct Josephinian Military Medico-Chirurgical Academy. The labor of putting these rooms in order without any help other than that of his two sons was truly one of love. His own sign as a practicing physician no longer in use had to be used to indicate the location of the " Institut für Geschichte der Medizin." Through his influence and persuasion valuable relics, especially of the various " Vienna Schools," began to pour in to give the museum one of the finest collections of the kind in the world. Bamberger's library, rich in early medical tomes, was added *in toto*, as was the famous Brettauer collection of medical coins.

Neuburger was a prolific writer. There is hardly a phase of medical science which he did not enrich with his scholarly research and his philosophical approach. Fielding H. Garrison rightly called him "the greatest philosophical historian of medicine." His *magnum opus*, his *History of Medicine* in two volumes (1906-1910), is still one of the greatest textbooks on this subject. Its importance was recognized by Sir William Osler who suggested its translation into English and wrote an introduction. Neuburger's writings on the history of the various "Vienna Medical Schools" are still unrivaled. The old teachers came to life and the old hospitals opened their doors to allow us a glimpse of their interesting activities. *Die Wiener Medizinische Schule im Vormärz* and *Das alte Medizinische Wien in zeitgenössischen Schilderungen*, both written in 1921 under the handicaps of the post war period, make delightful and instructive reading. The same is true of his biography of Herman Nothnagel (1922), whom Neuburger admired as one imbued with the essence of medical ethics.

In his important studies of the neuro-physiology of Swedenborg, Neuburger "brought him closer to most scientists than anybody before" —to use the words of a Viennese historian. His evaluation of the early psychologist Ernst von Feuchtersleben was highly praised by most historians. Very important contributions are his "History of Antitoxic Therapy," his "Medicine in Josephus Flavius," his "Theories on the Mechanism of Specific Nutrition," and *The Doctrine of the Healing Power of Nature throughout the Course of Time*. Many are the articles dealing with the history of the various medical specialties. All in all Neuburger wrote over two hundred books and articles, and each is a valuable contribution.

While his writings became the common possession of all students of the history of medicine, a relatively small group was fortunate enough to listen to his lectures. He had the ability to arouse the interest of the very beginner. The subject of his lectures covered a wide range, but speaking of the glorious past of the Vienna Medical School gave him particular pleasure. He used his museum collection and books to illustrate the spoken word. His enthusiasm was contagious, making the history of medicine a living subject. He was most generous with his students, never tiring of answering their many questions, of showing them the way to independent studies, and helping them wherever help was needed.

Numerous honors were accorded him. He was an active or honorary member of many scientific societies, especially all medical historical

societies of note, was honored at congresses, and received official honors from the governments of various countries. In 1935 he was given an honorary degree of Doctor of Medicine at the University College of Alcalá in Spain. Neuburger was proud of these honors, which he had thoroughly earned, but most of all he treasured the esteem and friendship of medical historians all over the world. On the occasion of his sixtieth birthday a medal was struck in his honor and his pupils and friends dedicated a "Festschrift" to him. On his seventy-fifth birthday congratulatory articles appeared all over the world, but because of the war the planned "Festschrift" had to be delayed until his eightieth birthday. This handsome volume was published in 1948 when a biography of Neuburger by his pupil and friend, Emanuel Berghoff, also appeared.

Although fate was kind to Neuburger in many ways, it also was cruel to him. The sudden loss of his beloved wife was a terrible shock from which he recovered only gradually. In 1939 he had to leave the city he loved and the museum and the library which he had created. He went to London to assume a position offered by the Wellcome Historical Medical Museum. The terrible hardships he endured during the Second World War and serious illness took their toll, but he continued to work. Now his main interest turned to English medicine and its relationship to medicine of the Central European countries. A number of publications are the result of his residence in England. In 1948 he came to the United States to join his son in Buffalo. An unsuccessful eye operation caused him great discomfort and greatly impaired his sight. At the age of eighty it was difficult for him to take root in a new country, and somewhat disillusioned he returned to Vienna in 1952. He continued to work in spite of diminishing vision and a hip fracture which disabled him completely. More and more the discomforts of old age descended upon him —ironically a subject which he had treated historically more than once. He must have frequently agreed with Cicero's *Senectus ipse morbus.*

On March 15 death brought an end to his suffering. With him goes one of the greatest teachers of the history of medicine, but his works will live on to inform and stimulate us.

HUMORAL PATHOLOGY

A Lingering Anachronism in the History of Tuberculosis *

WALTER PAGEL

To the Memory of Max Neuburger.

Introduction

One of the astonishing features in medical history is the tenacity with which humoral pathology—an ancient Greek conception—maintained its ruling position far into the eighteenth and even the first half of the nineteenth centuries. In this theory, the mixture of such humours as blood, mucus, yellow and black bile, and such qualities as warm, cold, dry, and damp, formed the yardstick by which to measure the healthy and the sick. This humoral composition (complexion) was thought to vary with the individual. "Too much" or "too little" of one or the other of the constituents, caused disease. This was an affair of the individual and concerned him as a whole. Consequently, there were as many diseases as there were patients. In other words, diseases were distinguishable as far as individuals were. Diseases were not, however, entities by themselves, nor were they classifiable according to the organs affected or to any external pathogenic agents which caused them. It would be, therefore, more correct to follow H. E. Sigerist,[1] and say that, in ancient medicine, there were no diseases; there was only the diseased individual. It follows immediately that ancient medicine developed *prognosis* rather than *diagnosis*.

Humoral pathology survived the severe battering administered by the new pathologies of Paracelsus (1493-1541) and Van Helmont (1579-1644), in which the chemical concept, disease location, and search for external causes played an important part. The example of Jean Fernel (1497-1558) may be quoted, however, to show that the idea of disease location—at least on paper—was compatible with orthodox humoralism. The latter survived the discovery of blood circulation by William Harvey

* This article originally was dedicated to Max Neuburger in honor of his 85th birthday.

[1] Sigerist, H. E., *Antike Heilkunde*. München, Heimeran, 1927, pp. 11, 24 and *passim*.

(between 1615 and 1628) and the iatrochemical and iatromechanical schools.

We propose to examine in the present paper a special example illustrating this survival: the pathology of pulmonary tuberculosis, notably of consumption and cavity formation in the lung.

I. Sylvius and His "Glandular Tubercles" Causing Lung Cavitation *versus* the "Humoral" Theory

In a famous passage, de le Boe (Sylvius, 1614-1672) describes his original observation of "glandular tubercles in the lung" as the anatomical basis of cavitation and phthisis.[2] This, he feels, should replace the opinion which had been ruling since Hippocratic times, that cavitation was due to a haemorrhage followed by suppuration and decay of the effused blood. De le Boe says he would not dare deny this possibility, but could not adduce any post mortem evidence for it. In spite of this caution, he obviously regards haemorrhage, as well as suppuration and phthisis, as the result and not the cause of cavitation.

It is well known how, up to the times of Bayle (1774-1816) and Laennec (1781-1826) de le Boe's discovery was neglected and the ancient theory of cavitation as a sequela to pulmonary haematoma tenaciously adhered to.

One may ask: why? The main reason was obviously the clinical course of events poignantly formulated in the Hippocratic aphorism: "From spitting of blood spitting of pus, and from this phthisis and death."[3] This, however, is not the whole story.

II. The Position of Galen

Galen (born about 130 A. D.) had visualized ulceration of the lung as a change causing pulmonary haemorrhage. In this view the first event was a "catarrh," i. e. the flowing down of a corrosive fluid from the head into the lung, eating up parts of the lung tissue.[4] Haemorrhage,

[2] Sylvius, Franc. de le Boe, Praxeos medicae appendix tract. IV, 51, *Opera medica*. Amstelodami, Elzevir, 1679, pp. 691 and 692.

[3] Hippocrates, Aphorisms, book VII, no. 15.

[4] Galen, Erosion of lung with haemorrhage following catarrh from the head; De locis affectis, lib. IV, cap. II, ed. Kühn, vol. 8, p. 289. See also about corrosive and salty catarrh eating up tissue and causing haemorrhage the passage in the Introductio s. medicus, cap. XIII, ed. Kühn, vol. 14, p. 742; although the genuineness of this treatise

then, was the result rather than the cause of cavitation. It is in harmony with this that Galen mentions debris of lung tissue brought up with the blood.[5] Massive haemorrhage, in his opinion, is due to the severe laceration of a lung vessel. It often follows small haemorrhages, as indicated by previous staining of the sputum. In the lung just as in other places the chronic ulcer leads to haemorrhage, a sequence which seems to be in full conformity with the "modern"—morbid anatomical—view arrived at by de le Boe.

Yet, there is a fundamental difference. Already the Hippocratic school of Knidos had held that lung suppuration and phthisis follow the softening of a "Phyma" in the lung. By "Phyma" they understood a nodule that slowly developed from the collection of humours, displaced by "catarrh" and subject to decay owing to this displacement and their corrosive nature. The Phyma as well as the lung ulcer—i. e. the causes of phthisis in the views of Hippocratic physicians[6] and of Galen respectively— are *bound up* with a *specific humoral theory*, namely the displacement of corrosive humours owing to "catarrh." By contrast, the modern view of cavitation and phthisis due to "glandular tubercles" is *divorced from any humoral concept*. It is true that even de le Boe finds a place for the viscid and mucous catarrh descending from the head into the trachea, for blood effused into the lung, acquiring corrosiveness and thereby ulcerating the tissue, and other traditional items of humoral pathology. It is, however, evident that de le Boe attaches no significance to such text book items—in contrast to his new observation of "conglomerate glands." These are the seat of phthisical changes, and predisposition to phthisis consists in the tendency of "glands" distributed throughout the body and normally invisible, to swell, obstruct blood and lymph flow and produce an abnormal lymph, i. e. pus. As early as 1648, van Helmont's treatise: *Deliramenta Catarrhi or the Incongruities, Impossibilities and Absurdities couched under the Vulgar Opinion of Defluxions*,[7] had been published. In it the catarrh theory had been demolished and pathological changes such as

is doubtful, this passage is consistent with Galenic teaching. It says that the places in which corrosive action of catarrh preferably happens are the throat, trachea, and lung, the latter being the most, and the throat the least dangerous site.

[5] Galen, Debris of lung tissue brought up with blood: De locis affectis lib. IV, 8, ed. Kühn, vol. VIII, 6. 262: "πολλοὶ δὲ τῶν οὕτως πεθόντων μόρια ἄττα τοῦ πνεύμονος ἅμα τῷ αἵματι συνανήνεγκαν" and *loc. cit.*, p. 289.

[6] Hippocrates, Phyma in the lung causing phthisis: De morbis, lib. I, ed. Kühn, vol. II, p. 189.

[7] This is the title of Walter Charleton's translation and "paraphrasis," London, printed by E. G. for William Lee at the signe of the Turks head in Fleet Street, 1650.

" caseous " foci and cavities were stated to be due to a *local*—pulmonary—change. Conrad Victor Schneider, by his discovery in 1660 of the mucous membranes (Schneider's membranes) as the local sources of " catarrh " fluid, only confirmed and upheld (however reluctantly) Van Helmont's earlier rejection of the " catarrh." [8] De le Boe's work follows these fundamental data and supports the view of *local* seats and causes of diseases—as foreshadowed by Van Helmont more than a century before Morgagni (1761), who is usually credited with it.

Galen thus remained within the humoralistic framework when he refers to haemorrhage into the lung as due to a preceding lung ulcer caused by " catarrh." However interested in the " loca affecta," he falls short of a concept of phthisis on localistic—morbid anatomical—lines. Moreover, the sequence, catarrh, ulceration, haemorrhage, in his views covers not all, but only one group of cases of phthisis. The latter, in Galen's opinion, may be also due to a primary rupture of a lung vessel.[9] Of all haemorrhages, he regards those into the lung as particularly dangerous, since they are liable to cause phthisis. In this view, effusion of blood has the same effect as catarrhal fluid—for both will ulcerate the lung by their displacement, causing decay of the affected part. A simple rupture of a lung vessel, for example, after exertion, may then touch off the whole series of events: haemoptysis, suppuration of effused blood, ulceration and phthisis.

There is, therefore, no ambivalence in Galen's views on the causation of phthisis. They have a localistic element. They are, however, different from the " modern " view in that they are fundamentally humoralistic and concede to the local events in the lung a rank of secondary importance only. It is thus that, backed by the authority of Galen, " phthisis through haemorrhage " prevails. No consequence is drawn from de le Boe's discovery and up to Laennec, the humoralistic view carries the day.

III. Haemoptysis in the Humoralistic Tradition from Galen to Stahl and Frederic Hoffman

As we have seen, simple clinical observation was the pillar on which the view " phthisis through pulmonary haemorrhage " rested. In the clinical history, the first and central event is spitting of blood. This is followed by spitting of pus, attended by consumption and death.

[8] Schneider, *De catarrhis*. Wittenberg 1660.

[9] Galen, Phthisis through rupture of a lung vessel: *loc. cit.* Introductio s. medicus,

There is, however, a body of observations which, in this connection, so far have had little attention. Such observations and their typically humoralistic interpretation had a special appeal to eighteenth century clinicians, such as G. E. Stahl (1660-1734) and Frederic Hoffman (1660-1742). These observations concern the *suppression of the natural flow of humours and their discharge through unnatural outlets.*

The main instance, known and studied in antiquity, is *suppressed menstruation* and the beneficial effect of a vicarious haemorrhage. In the Hippocratic Corpus (5th to 4th century B. C.), an amenorrhoeic woman is said to be liable to all consumptive disorders of the lung including their usual fatal issue—because of the blood being displaced from the uterus to the lungs.[10] We may assume that haemoptysis was among these consumptive disorders.

On the other hand, haemoptysis does not seem to be explicitly mentioned in connection with menstrual disorders. It is safe to assume, however, that it is covered by the wider notion of " haematemesis "; thus a Hippocratic aphorism says, " Those who *vomit* frothy blood, bring it up from the lung." But the reading " vomit " in this passage is open to criticism and has been replaced by " cough up " in most editions, ancient and modern.[11] This is probably applicable to the Hippocratic emphasis laid on the haemostatic effect of menstruation on " haematemesis."

That haemoptysis could take the place of suppressed menstruation was clearly discussed by Galen, Celsus (first century, B. C.) and Aretaios (2nd cent. A. D.). It is the latter who, in addition, describes haemoptysis appearing in place of menstruation in a monthly cycle. Aretaios says that a bringing up of blood occurs in women who have not menstruated, as monthly offerings which may appear in the very period of menstrual purgation and stop during the appointed times of interval; and if the woman is not cured, the bringing up will occur in its turn for many periods. In these observations, a *salubrious* effect of haemoptysis was persistently emphasized—just as for other vicarious haemorrhages.[12] Thus, Galen discussed the preventive action of nose bleeding against the

ed. Kühn, vol. XIV, p. 743—Commentary on the first book of Hippocr. Epid. I, cap. 18. de. Kühn, vol. XVII A, p. 61—De locis affectis IV, 8 ed. Kühn, vol. VIII, p. 263.

[10] Hippocrates on phthisis and amenorrhoea: On diseases of Women I, ed. Van der Linden, vol. II, p. 420. Ed. Kühn, vol. III, p. 613.

[11] Haematemesis and haemoptysis in the Hippocratic corpus: Aphor. lib. V, no. 13 and Gorraeus, Jo., Definit. med., *Opera Omnia*, Paris, 1622, p. 194.

[12] Aretaios, edition and Engl. transl. by F. Adams, London 1856, pp. 26 and 266 ff.

dangers threatened by amenorrhoea as well as the salubrious effect of menstruation on haematemesis.[13]

The most detailed account of haemoptysis and its beneficial action is found in Paulus Aegineta (7th cent. A. D.). He says: "When haemorrhoidal or menstrual discharges are suppressed, pulmonary haemorrhage will render this condition of suppressed blood flow free from danger." This passage has been translated differently,[14] but that this version, conveying the beneficial effect of haemoptysis in amenorrhoea is the correct one, emerges from the whole context of the passage. For Paulus goes on to say: "and the like good effects will result from discharges of blood by rupture when the disease is connected with the Plethora . . ." and the passage ends contrasting these good effects with those following vascular erosion: "When the discharge of blood is from erosion, it is never productive of good." Incidentally, the same chapter contains a careful differential diagnosis of blood coughed up and blood vomited or excreted per rectum, and connects certain forms of haemoptysis with the bringing up of lung stones, subsequent fever and consumption.

There is no point in following up the humoralistic concepts in connection with haemoptysis due to vicarious menstruation any further. The present author has done so elsewhere.[15]

[13] Galen, Comment on book V of Hippocrates' Aphorisms, ed. Kühn, vol. XVII B, p. 822.

[14] Paulus Aegineta, ed. I. L. Heiberg, Lipsiae, 1921 (*Corpus Medicorum Graecorum* IX, 1), Part 1, p. 212. Translation by F. Adams, London 1844, vol. I, p. 483. See also: *Pauli Aeginetae Opera Jo. Guinterio Andernaco interprete.* Lugduni, 1567, pp. 319-320. Berendes, J., Des Paulos von Aegina Abriss der gesamten Medizin, Buch III, *Janus* 1910, vol. XV, p. 168.

[15] To the ancient observations of vicarious menstruation by haemoptysis discussed in the present author's "Historical Notes on Haemoptysis due to Vicarious Menstruation" (*Victor Robinson Memorial Volume*, New York, 1948, pp. 299-312), the following case report should be added: Erasistratus observed a girl from Chios, in whom suppression of menstrual flow was followed by coughing up of mucus and finally by blood—at periodic intervals when menstruation was due. Each time haemoptysis lasted for three to four days. This observation has been transmitted by Galen, who blames Erasistratus for his rejecting venesection on theoretical grounds although this could have been lifesaving (De venae sectione adversus Erasistrateos Romae digentes, cap. 3, ed. Kühn, vol. XI, 1826, p. 200). See also J. F. K. Hecker, *Geschichte der Heilkunde*, Berlin, vol. I, 1822, p. 277, and Sprengel-Rosenbaum, *Pragmat. Geschichte der Arzneikunde*, 4th ed., vol. 1, Leipzig, 1846, p. 534). The importance of venesection in such cases was discussed at length later on by Forestus, Observationes, lib. XXVIII (De mulierum morbis), observ. 3 in *Opera omnia*, Francof., 1623, p. 629. Forestus also reports a case of haemoptysis at periodical intervals comparable to menstruation (*ibidem*, lib. XVI—morbi pectoris—observ. 22, p. 34). The discussion was resumed by Stahl and his pupils (see the present author, *loc. cit.*, 1948, footnote 3).

De Sanguinis Fluxu ex Pulmonibus. 207

Eſt autem ſic inſtitutus acidularum potus tunc quam maxime utilis, quando a ſcorbutica & ictherica ſanguinis & humorum intemperie malum hoc & inducitur & fovetur.

§. XI.

In vera veſtigiique regimine tenendis. Ultimo loco addendum eximium CELSI *lib. IV. cap. 4.* conſilium, de iis, quæ ſervanda in vita victuque ab haemoptycis, dum monet: ipſis utilem eſſe quietem, ſecuritatem, ſilentium; ut caput ſublime cubet, & facies ſæpius aqua frigida foveatur: inimica autem ipſis eſſe, vinum, balneum, venerem, acriora omnia, item calida fomenta, conclavia calida & concluſa, multa veſtimenta corpori injecta, etiam frictiones, niſi ubi ſanguis bene coctus fuerit. HIPPOCRATES autem *Libr. de internis affectionibus* commendat haemoptyſi affectis aquæ potum, item lac bubulum tertia parte aqua multa remixtum & copioſius aſſumtum, item lac caprillum, cochum cum lemine lini & ſemine ſeſami; porro farinam cum lacte coctam. Quæ omnia proficua eſſe, experientia & ratio teſtatur, eo quod tali dieta humores tenues incraſſantur, acres mulcentur & laſarum partium conglutinatio promoveatur.

ENARRATIONES MORBORUM.

OBSERVATIO I.

De haemoptyſi mulieris cujusdam. Perculſa fuerat nobis foemina, triginta annorum, ipſo illo quo menſes fluebant tempore, terrore ingenti, quo illico ſubſtitit ſanguis, & inducta pectoris gravitas, præcordiorum anxietas & cordis palpitatio impenſa. Recurrente dein menſtrua periodo, redit quidem ſanguinis ſtillicidium, ſed admodum parcum, præcedente preſſorio & tenſorio dorſi ac hypochondriorum dolore, pectoris anguſtia & gravative in præcordiis ſenſu. Accedit vero etiam ſanguinis è pectore per tuſſim ejectio, poſt quatriduum ſponte iterum ceſſans. Quin quotieſcunque poſtea utero purgata, toties, per quinque vel ſex dies, ſanguinis plus vel minus è pulmonibus ejecit, idque per novem annos continuos; ita tamen, ut quum impregnatione facta menſes retinerentur, haemoptyſis etiam quieſceret, poſt partum autem mox rediret, atque etiam ſub ipſa lactatione ſueta periodo ſuccederet. Interim nihil inde detrimenti redundavit in ſanitatem, neque quicquam incommodi ſenſit foemina, fruſtra tamen ad compeſcendam hanc pulmonum haemorrhagiam variorum Medicorum conquiſivit & conſilia, & auxilia.

Epicriſis.

Singulare hoc eſt haemoptyſeos menſtruæ, diuturnæ quidem, ſed periculi expertis exemplum, quo aperte confutatur falſa non nullorum opinio, qua haemoptyſin omnem phthiſin habere, aut comitem, aut pediſſequam putant. Duxit autem originem ex ſanguinis ab utero ad pectus, propter terroris vehementiam, facta regurgitatione, qua vaſa pulmonalia diducta tandem aperta ſanguinem eructarunt, ſed remittente ſanguinis ad interiora menſium tempore ſolenni reſtrictione & evacuato ſuperfluo, liberior iterum factus progreſſus, vaſa occluſa & ſic ſponte ceſſavit haemoptyſis ac damni intulit nihil. Interim per quas ſemel iterumque ſanguis elatus eſt vias, ex facili poſtea relegit, & accedit quaſi quædam naturæ conſuetudo, certa ſcilicet ſolidarum partium diſpoſitio, qua appulſo validius ſanguini, prompte viam concedunt ac diverticulum, ægre poſtea, ac niſi ſtatim in principio, medicamentis iterum tollenda.

OBSERVATIO II.

De haemoptyſi viri & ſummo periculo. Juvenis viginti annorum, corpore tener, animo ad iracundiam admodum proclivis, per aliquot jam annos circa veris & autumni ingreſſum tuſſi ex pulmonibus ejecerat ſanguinem; noviſſime autem accidit, ut circa idem tempus ira excandeſceret vehementius, eoque haemoptyſin incurreret largiſſimam, certis quotidie periodis accedentem, hora ſcilicet matutina quarta & veſpertina nona. Eruptionem ſemper ingens præcordiorum anxietas, frigoris notabilis in pedibus ac preſſorius & tenſorius in hypochondrio ſiniſtro ſenſus præceſſerunt; poſtea ſuccellit ſcreatus ſanguinis, qui per quatuordecim dies perſtitit & octo minimum libras ſanguinis evexit, non ſine magna virium jactura. Medicus in conſilium vocatus, neglecta ſanguinis miſſione, decocta adſtringentia, incraſſantia & pectoralia, ipſum quoque hæmatitis pulverem obtulit, ſed fruſtra prorſus, ac potius ſanguinis evacuatio ſtatas ſuas ſemper ſervavit periodos. Advocatus & ego in auxilium quaternis ſingulis horis propinavi ſalis volatilis oleoſi genuini xx. guttas ex aqua ceraſorum nigrorum; circa ſomni tempus pulveris antiſpaſmodici, ex dente hippopotami, unicornu vero, lapidibus cancrorum, ungula alcis, nitro, diaphoretico antimonio, pulvere lumbricorum terreſtrium & cinnabari, doſin, cum tantillæ maſſæ pilularum de cynoglo ſſa, ſumere juſſi; alvum liberam ſervare omollientibus clyſteribus nitro largius conditis, ac pedes eon modo aquæ tepidæ ſubinde immitter , ſed & calidis integumentis à frigoris acceſſu ſolicite defendere, ſuaſi. Quibus, fortunante DEO, curationem ex voto confeci.

Epicriſis.

Periodica fuit hæc haemoptyſis tam ratione recurſus vernalis & autumnalis, quam etiam eruptionis ipſius mane & veſperi factæ, ſimulatque teſtimonio eſt, quantum valeat iracundiæ affectus ad provocanda ſanguinis profluvia. Quia autem periodos ſervantes morbi ſimitem ut plurimum habent ſordium in prima corporis regione colluviem, in promtu eſt judicare, vulgaria illa pectoralia, incraſſantia, adſtringentia, efficere potuiſſe nihil, ac præter leniora evacuantia, recte in uſum vocata fuiſſe ea, quæ ſpaſticas ſtricturas, in conſuetudinem & habitum quaſi tranſeuntes, laxarunt, antiſpaſmodica ſcilicet, maxumeque illam cum cynogloſſa confectam pilularum maſſam. Sed minus obvium erit non nullis id, quod ſal volatile oleoſum, cujus vis languinem exaſtuans & humores commovens alias paſſim decantata, uſurpatum cum fructu. Verum candide profitemur ac confidenter, nos ipſo hoc remedio ſæpe ſæpius ſuſtuliſſe cito ac ſecure nimia ſanguinis profluvia, per quæcunque loca facta. Id tamen monendum, neutiquam exhibendum eſſe efficax hoc auxilium, in, aut mox ante paroxyſmum, ſed ceſſante ac remittente fluxu. Etenim quia impenſiores ſpaſmos, eruptionis auctores, excipere ſolet debilitas & relaxatio, ad ſtagnationem novam adeoque inducendam denuo ſpaſmum poſtea anſam præbens, hanc utique non melius poteſt præcindi, quam robo-

Fig. 1.

The first report of a case of haemoptysis due to vicarious menstruation, from Hoffman's Medicina rationalis systemica, pars II, sect. 1, c. II, *Opera omnia*, Genevae 1761, vol. II, p. 207.

The point with which we are concerned here is the potent appeal which was derived from blood retention and discharge in favour of an interpretation of predisposition to phthisis in terms of humoral pathology up to the eighteenth century. This is best illustrated by Frederic Hoffmann's leading observation in this field: [16]

A female, aged 30, was struck down at the time of menstruation with a grave sensation of anxiety, thereupon the flow of blood stopped and heaviness in the chest, a feeling of anguish in the precordial region and heart palpitation ensued. Then, when menstruation was due again, a small trickle of blood appeared, preceded by a pressing and tensive pain in back and hypochondria, angina in the chest and a feeling of heaviness in the precordia. There was also coughing up of blood from the chest, which stopped within four days by itself. Whenever she menstruated afterwards, she brought up blood from the lungs, in varying quantity, for five or six days in succession and continued to do so for nine years—in such a way that whenever menstruation ceased owing to pregnancy, haemoptysis failed to recur, returning however soon after childbirth in its accustomed turn, even during lactation.

This remarkable case report constitutes a little known classic in the history of pathology. It is even more remarkable for the judicious comment added by the author: "This is a unique example of menstrual haemoptysis, longstanding, but involving no danger—which obviously refutes the erroneous opinion of some that any haemoptysis is beset with or followed by phthisis. It is caused by regurgitation of blood from the uterus to the chest engendered by the violent attack of anxiety whereby pulmonary vessels, being dilated and finally laid open, discharged blood."

Hoffmann's adversary, G. E. Stahl, mentions a case which seems to belong to the same category.[17] It concerns a female, aged 30, who had always suffered from menstrual trouble necessitating frequent venesections which relieved her symptoms so well that finally (after childbirth) she could not do without them. At that time menstruation had ceased completely and, losing weight considerably, she had developed asthmatical symptoms—which raised some suspicion of pulmonary tuberculosis. In spite of gross emaciation, venesection was performed again and relieved her greatly. Then when recurrence of symptoms called for a repetition of treatment, a new doctor disparaged venesection, saying that "she

[16] Hoffman, Fred., Medicinae rationalis systematicae tomi IV, pars 2—specialis morborum Pathologia, doctrinam haemorrhagiarum et dolorum tradens, *Opera omnia*, Genevae, 1761, tom. II, p. 207 (see Fig. 1).

[17] Stahl, G. E.: *Dissertationes medicae*. Halae 1707. No. X, Disputatio Medica de Morbis habitualibus by A. Chr. Rhetius, Halae 1698, p. 17.

should rather see to have some blood pumped into her" ("sie solte sich lieber Blut in den Leib kauffen"). Venesection discontinued, she almost died and in March—on the very day venesection had been due—she developed a fit terminated by haemoptysis. Cure was not effected until venesection was performed again—and it came like a miracle. But in a year's time, when March came again and a third (new) doctor refused venesection, the patient died.

Thus, the author adds, in a case of habitual "dry asthma," obstruction and congestion of lung vessels tending to haemoptysis were responsible for a dangerous condition.

In Hoffmann's, as well as Stahl's, comments humoral pathology forms the core. It is somewhat disguised, however, by the emphasis laid on "tonus" and "atonia" as determining the motion of blood, lymph, or other humours. Hoffmann invokes a neuro-vascular mechanism based on irregular and suppressed menstruation. Yet, the central event is the displacement of the principal humour (namely blood) and its dangers in a genuinely humoralistic interpretation.

Tempting as it is, we cannot here follow up the humoralistic tradition in the pathology of tuberculosis. We refer to the works quoted below.[18] Dyscrasia and acidity, a property which the humours were believed to assume owing to an abnormal constitution of the lymph system, remain the basic concepts in the works of early nineteenth century authors (Kortum, Baume, Hufeland). Andral (1797-1876) emphasized the inflammatory, purulent and "secretory" nature of tubercular changes—it is not accidental that he revived humoral pathology in general. But even those who, like Bayle and Laennec, stressed the peculiar non-inflammatory and rather "neoplastic" character of the "tubercle" resorted to a tubercular diathesis—a general rather than local distemper. In this respect they agreed with Andral. But it was the humoralist Andral who tried to reverse the advance which Laennec had achieved by stating

[18] Waldenburg, L., *Die Tuberculose, die Lungenschwindsucht und die Scrofulose nach historischen und experimentellen Studien.* Berlin, Hirschwald, 1869, notably pp. 1-130. This is the classical work on the subject, the source of many later efforts, though little known today. Pagel, W., Die Krankheitslehre des Phthise in den Phasen ihrer geschichtlichen Entwickelung, *Beitr z. Klinik d. Tuberk.*, 1927, vol. LXVI, pp. 66-98. Pagel, W., Zur Geschichte des Lungensteine und der Obstructionstheorie der Phthise, *Beitr. z. Klin. d. Tuberk.*, 1928, vol. LXIX, pp. 315-323. Flick, L. F., *The Development of our Knowledge of Tuberculosis.* Philadelphia, 1925. Webb, G. B., *History of Tuberculosis.* (Clio Medica Series) 1936.

that haemoptysis was one of the common causes of phthisis.[19] This brings us back to where we started—the discovery of de le Boe (Sylvius) of haemoptysis being a secondary event in lung cavitation.

Today we study and treat the tuberculous focus, i. e. the local effect of the tubercle bacillus in a tissue or organ. The status of the humours, as evidenced for example by the red blood cell sedimentation rate, is but of ancillary value. The future, however, may well bring a revival of humoralism—when new methods in the study of predisposition will inaugurate new measures of prevention.

The author is indebted to Dr. Sydney Thornton for revising the manuscript.

[19] Andral, *Medicinische Klinik*, 4th ed. German transl. by Fliess. Quedlinburg and Leipzig, 1842, vol. IV, p. 14.

THERAPEUTIC TRENDS AND THE TREATMENT OF SYPHILIS BEFORE 1900 *

In Memory of Max Neuburger

OWSEI TEMKIN

At about 1495, a disease became known which the army of the French king, Charles VIII, retreating from Italy, spread in other countries. Whether the Mal de Naples, *Malafranczos, Morbus Gallicus, French Pox* had existed in Europe long before, or whether it had recently been imported from America by the crew of Columbus, has not yet been decided. It seems certain, however, that in a relatively short time large numbers of people were infected, and that the contemporaries thought of the disease as epidemic.[1]

Whether old or new, the disease was recognized as a special entity. How, then, does one find a treatment for a new disease? It is most remarkable that almost as soon as we hear of syphilis we also hear of its treatment by mercury. Yet there is nothing mysterious about this coincidence. The old sources tell us how it happened. Mercury was used in ointments for scabies and leprosy long before the appearance or recognition of syphilis.[2] The new disease, too, manifested itself upon the skin, and what was more natural than to apply the same remedy? Treatment by analogy has no rational basis; Paracelsus already had remarked: "Should this be a reason for such treatment of the disease because the pox resembles leprosy more than fever?"[3] Yet I wonder how many treatments then and now have been tried because of some resemblance between two diseases. Potassium bromide was introduced into the treatment of epilepsy after its success in hysterical fits.[4] And the history

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[1] Hans Haustein, Die Frühgeschichte der Syphilis 1495-1498. *Archiv für Dermatologie und Syphilis*, 1930, vol. 161, pp. 255-388, has adduced good evidence that syphilis, in the early years really spread in epidemic proportions.

[2] Cf. Karl Sudhoff, *Aus der Frühgeschichte der Syphilis*, Leipzig, Barth, 1912 [Studien zur Geschichte der Medizin, 9] pp. 55 and 120.

[3] Paracelsus, Von der französischen Krankheit drei Bücher. *Medizinische, naturwissensch. u. philosophische Schriften*, ed. Sudhoff, vol. 7, München, 1923, p. 76.

[4] Cf. Owsei Temkin, *The falling sickness*, Baltimore, The Johns Hopkins Press, 1945, p. 286.

of syphilis itself offers another example: potassium iodide came into use after it had been applied to goiter and scrofula.[5]

A remedy may have many degrees of usefulness. Some suppress or alleviate symptoms; others are expected to eradicate the disease. We are very much conscious of these distinctions which, for instance, play such a great role in the discussions of malaria therapy. In former centuries, this distinction was not as sharply drawn. Disappearance of symptoms was often taken for a cure. We must not forget that thinking in long-range terms is a habit which even scientists have acquired relatively late. In the eighteenth century a man could be pronounced cured of syphilis according to the ruling by Boerhaave, the greatest clinician of that century: "If anyone is cured of the disease, and remains free for a week or fortnight, and is nevertheless doubtful whether he is well or not . . . let him take the most stimulating medicines, and then if anything remains, it will immediately show itself; and if nothing appears, there is the greater reason to believe the patient is cured." [6]

Here it has to be added that our knowledge of the effectiveness of a treatment depends on our knowledge of the disease itself. We should make a serious mistake if we forgot how uncertain the diagnosis even of well recognized disease entities was in former centuries. Tabes and general paresis, for instance, were not definitely connected with syphilis before the late nineteenth century. Before that time, then, anti-syphilitic treatment, to be approved, did not have to prevent the occurrence of these late forms. Or, to take another example, Ricord, the greatest syphilologist of the nineteenth century, who finally separated gonorrhoea from syphilis, in 1851 firmly believed in the abortive cure of syphilis by cauterization or excision of the chancre. He only stipulated that this must be done not later than five days after infection.[7] This suggests that Ricord did not yet differentiate between syphilitic chancre and chancroid,[8] and that the treatment seemed to be effective where in reality the patient had never suffered from the disease. On the other hand, since the diagnosis of so many diseases was difficult, the suspicion of syphilis was ever present as a *refugium ignorantiae*.

Under these circumstances, the question as to the most effective and

[5] Cf. Jules Rochard, *Histoire de la chirurgie française au XIX^e siècle*, Paris, 1875, p. 127 f.

[6] *Boerhaave's academical lectures on the lues venerea*, transl. Jonathan Wathen, London, 1763, p. 42 f.

[7] Ph. Ricord, *Lettres sur la syphilis*, Paris, 1851, p. 180.

[8] Cf. Alfred Fournier, *Traitement de la syphilis*, Paris, 1893, p. 53.

radical form of treatment was bound to remain open to widely different answers and no consensus was reached whether syphilis was curable at all. In the early sixteenth century Vigo doubted the curability of an infection that had passed beyond the early symptoms.[9] These doubts were soon transferred to the therapeutic power of mercury. In the late fifteenth and early sixteenth centuries the mercurial treatment of syphilis usually was very intensive, extending over periods from about five to thirty and more days. During this time the patient was kept in an extremely hot room, carefully secured from any fresh air. The inunction was performed close to an open fire once or several times daily, and the patient was made to sweat copiously afterwards. If a relapse occurred, the treatment was repeated. In the case of the famous humanist, Ulrich von Hutten, eleven such cures were performed in nine years. But they did not free Hutton from his crippling tertiary osseous lesions, nor were other remedies like arsenic and vitriol of any avail.[10] Then, in 1518,[11] he was persuaded to undergo a cure with guaiacum, the wood from the West Indies that was being imported by the firm of the Fuggers and was just then much talked about and publicized by the doctors Poll and Schmaus. The new remedy had a marvellous effect upon Hutten, and in 1519 appeared his poem in praise of the wood. Hutten's book exerted a great influence. Paracelsus in 1529 stated that "the first clamor about the wood was raised by an inexperienced and worldly man in Germany with no other ascendent in him than having his mouth resound with the latest craze. This man has been the schoolteacher and professor of the doctors and masters. What good he taught them, can daily be heard from the sick." [12] But in his criticism of contemporary therapy of syphilis, Paracelsus was far ahead of his time. Hutten had proclaimed his cure prematurely; only a few years after the publication he died of syphilis. This was ignored; the earlier claim lived on. No less a doctor than Jean Fernel copied long passages extolling guaiacum over mercury. Mercury, Fernel contended, cured the disease in few people, and then only in those who were strong and where the evil was in its very beginning.[13] Fernel,

[9] Joannes de Vigo, *Pars prima practicae copiosae dictae*, lib. V, c. 3; 1521, fol. 184 v. Cf. also Proksch (see note 20) p. 45.

[10] Cf. Ernest L. Zimmermann, The French Pox of that great clerke of Almayne, Ulrich Hutten, Knyght, *Janus*, 1932, vol. 36, p. 248.

[11] Cf. Zimmermann, *l. c.*, p. 249.

[12] Paracelsus, Vom Holz Guajaco gründlicher Heilung (ed. Sudhoff, vol. 7, A II, verso); cf. also Georg Sticker, Entwickelungsgeschichte der spezifischen Therapie, *Janus*, 1929, vol. 33, p. 229.

[13] Jean Fernel, *Le meilleur traitement du mal vénérien*, transl. L. Le Pileur, Paris, 1879, p. 88.

and many physicians of the sixteenth century, replaced mercury altogether by guaiacum. But even where no such radicalism prevailed, guaiacum, sarsaparilla and other " sudorific woods " remained in use because something more than mercury was needed, especially in tertiary syphilis.[14] I have the impression that the popularization of potassium iodide through Wallace and Ricord since 1836 made these decoctions fade into near oblivion. However, the question of the curability of syphilis was not solved. When Fournier, in 1893, published his work on the treatment of syphilis, the toxic effects of mercury were well known and avoided as far as possible. Treatment by mercury and iodide took the form of well regulated and repeated courses. But what answer had Fournier to give to a patient who finally asked him whether he was absolutely cured? Couched in more encouraging words, the answer essentially followed Ricord's dictum: " There is neither a dose nor a pharmaceutic form, nor any length of treatment which confers immunity with certainty, which carries the guarantee of the complete, absolute and radical extinction of the pox." [15]

I have tried, so far, to emphasize the role of empirical factors in our treatment of disease: knowledge of the disease itself, knowledge of the therapeutic and toxic effects of the drugs in man. But, however large a place we may allow to non-prejudiced clinical observation and accumulating experience, we shall hardly believe that these alone mould our concepts of treatment. Down to the eighteenth century, for instance, physicians quite generally believed in the occult powers of human blood, and of animal excrements. Then in the course of a few decades, much too short for experimental trial, most of this was relegated to superstition because the philosophy of the Enlightenment did not admit the occult. We cannot always establish direct connections between the particular treatment of a disease and philosophical movements. Yet in between the two we have theory which links detailed facts and general ideas. And the concept of treatment and the pathological theories of the time are quite definitely interdependent. During the Renaissance and long afterwards, pathology rested on the theory of the humors which had become deranged in sickness and had to be purged by bleeding, cathartics, and emetics. Nature in her attempts to free the body from the morbific matter tried to eliminate it through the urine, feces, sweat, or through pustules, abscesses, ulcers, and other discharges and cutaneous eruptions. In many ways this theory

[14] Cf. Boerhaave, *op. cit.*, pp. 317 and 345.
[15] Fournier, *op. cit.*, p. 587.

influenced the treatment of cutaneous and venereal diseases. The venereal poison, having entered the body, was compelled towards its exterior. Fortunate those in whom it was discharged in form of a gonorrhoea, for they might escape the true lues! This discharge should not be prevented by astringent remedies, since the poison would, thereby, be prevented from leaving the body altogether. I do not believe that the humoral theory was chiefly responsible for the doctrine that gonorrhoea and syphilis were due to the same cause. Rather their common characteristic of venereal diseases and, possibly, the occurrence of mixed infections engendered this confusion. But the humoral theory encouraged it, and the same theory exerted, moreover, a profound influence upon the therapy of syphilis since it regarded an elimination of the morbid humors through salivation or sweating as essential for the cure. Fracastoro, who in his poem of 1530 coined the name syphilis, wrote: "You will see the excrements of the evil continuously flow through the mouth in unclean spittle." [16] And for about 200 years or more, to treat syphilis by mercury or "to salivate" became synonymous expressions. There were those who, like Sydenham, insisted upon a discharge of "about four pints in the twenty-four hours" until the symptoms had disappeared.[17] Boerhaave advised a similar amount of salivation and, since he stands between the older humoral pathology and the more recent solidary one, his theory of the proper treatment of syphilis deserves some notice. According to Boerhaave, the disorder resides in the fat and bone marrow, which, therefore, must be dissolved.[18] This aim he tried to achieve by emaciation, i. e. by putting the patient on a starvation diet, by purgatives, by sudorifics (guaiacum) or by salivation. He calculated that a minimum of 28 to 30 days of salivation would produce 112 pounds Troy of spittle, and assuming one half of our humors to be oil "it is evident the whole fat must have been dissolved and expelled; and that if a very corpulent man was to be thus cured, not the least vestige of his fat would remain." [19]

In course of the eighteenth and nineteenth centuries, the humoral pathology gave way to a solidary one which located diseases in organs, tissues and finally cells. This change in pathology was also accompanied by changes in medical treatment. For one thing, I believe that the spread of a milder mercurial treatment without salivation, the so-called Mont-

[16] Fracastoro, Syphilidis lib. II; *Opera omnia*, sec. ed. Venetiis, 1574, fol. 180 r.

[17] *The works of Thomas Sydenham*, transl. by R. G. Latham, vol. 2, p. 44, London, Sydenham Society, 1850.

[18] Boerhaave, *op. cit.*, p. 305.

[19] *Ibid.*, p. 341.

pellier method,[20] was facilitated as soon as physicians did not expect to see the discharge of the vicious humors. Besides, a solidary pathology is much more likely to consider disease as localized in certain parts without affecting the whole body. John Hunter as well as Ricord and others considered the syphilitic chancre as a localized disease which if extirpated might not spread over the body. Then with the advance of bacteriology this view gained renewed impetus. Though the causative agent of syphilis was not known, it was postulated by analogy with the bacteria found in other infectious diseases. The question of an abortive treatment merely consisted in finding the best way of preventing the syphilitic virus from wandering into the regions next to the colony it had first formed.[21]

In many cases it is easy to see how theory was responsible for a therapeutic concept and how the two changed together. Yet I do not believe that it is always possible to tell what accounted for a trend: theory or experience. I should like to mention one example, if only in order to pose a question. Reading the early literature on syphilis, I have become impressed by the emphasis placed on heat and sweating, be it in course of the mercurial treatment, be it in course of the guaiacum cure. I wonder all the more whether this treatment was in the direction of the modern idea of hyperpyrexia, since in Boerhaave I also read the following passage: "In the history of cures, it is evident that this contagion was never removed, except by a fever, by mercury, by antivenereal decoctions, or violent sudorifics."[22] At any rate Boerhaave believed that something like a fever arose during the sweating procedure[23] and I wonder whether he and the empirics before him had been on the right track or whether they had just been carried away by mere fancy.

There is still another aspect to the relationship between empiricism and theory, which the early history of syphilotherapy also helps to illustrate. Mercury, as was said before, owed its introduction to the empirical discovery that it was helpful in syphilis just as it had been helpful in some diseases of the skin. Some early prescriptions are recipes against the French Pox with little or no attempt at individualization. As early as 1497 Leoniceno in Ferrara held forth just against this very procedure.

[20] Cf. J. K. Proksch, *Die Geschichte der venerischen Krankheiten*, 2. Theil, Bonn, 1895, p. 381.

[21] Cf. Fournier, *op. cit.*, p. 45 f.

[22] Boerhaave, *op. cit.*, p. 43.

[23] Cf. *ibid.*, p. 317. The word "fever" which occurs in the English translation at my disposal should not be taken in its modern connotation as used in the expression "fever therapy."

"Let doctors beware, lest after the fashion of a bad cobbler who tries to fit everybody with the same shoe, they also endeavour to cure the French disease in everybody with the same medicine." [24] This warning revealed two different attitudes, often represented by two professions. The barbers, pox doctors and low surgeons declared mercury an antidote, or specific as we should say, against syphilis, and contented that it *had* to be used since the disease would not yield to anything else. The learned physicians, on the other hand, whether they used mercury or not, insisted that each case had to be considered individually and that only a doctor who could judge the temperament of his patient really knew how to manage the case on a rational basis. For the one the remedy was everything, for the other is was but a good or bad instrument. If formulated generally and without restriction to syphilis, this problem is not without interest today. I have the impression that our treatment of infectious diseases has become more standardized than that of organic and functional disease because in the first category we have had to deal with masses of people rather than individuals. In the prevention or treatment of epidemics or crippling endemics, the general denominator, i. e. the disease, is of greater importance than the individual variations which in cases of essential hypertension or of neurosis may mean everything.

Most of us, when engaged in the solution of a problem, have the feeling that the value of the work of our predecessors depends on their good or bad observation, collection of sufficient data, right or false reasoning and similar factors inherent in the method of the science in which we are engaged. I have just now touched upon the possibility that concepts of medical treatment may have been influenced by extraneous factors. Of this I wish to give a few more examples. I may start with a very crude one of the influence of economic motives. In the sixteenth century Hutten mentions a doctor who originally stood rather aloof from guaiacum, but when he saw how well it sold, he quickly changed his attitude and arrogated to himself the right of prescribing it.[25] It has also been stated by medical historians that the whole story of the American origin of syphilis was used—if not invented—to bolster the sale of guaiacum, the wood that was imported from America. There may be a grain of truth in this last story, but I doubt its significance for shaping a long term

[24] Nicolaus Leonicenus, Libellus de epidemia, quam vulgo morbum gallicum vocant, in: Karl Sudhoff, *The earliest printed literature on syphilis* (adapted by Charles Singer), Florence; Lier, 1925, p. 172. The context indicates that Leoniceno probably has treatment by mercurial inunction in mind.

[25] Cf. Zimmerman, *op. cit.*, p. 278.

trend. Nevertheless, I believe that the therapeutic controversy of the sixteenth century had its social background. Mercury, as indicated, was used by the surgeons who traditionally had to deal with injuries and external diseases. Even much later, when medicine and surgery had ceased to be different professions, this medieval heritage in continental Europe accounted for grouping skin and venereal diseases together into the same specialty, with the result that the visceral and nervous manifestations of syphilis were relegated to medicine and psychiatry. Even in modern times this dichotomy may not have been without influence upon the therapeutic point of view. But 400 years ago the cleavage was socially significant. The barber-surgeon treated the common man; whereas the doctor of medicine had his main clientele among the rich and the nobility. These two social strata had a somewhat different point of view towards venereal diseases. The common people accepted the terror of the mercurial cure as a punishment for their sins. The nobility were less inclined to seek moral improvement from their physicians and preferred a treatment that was less severe.[26]

At a first glimpse such a motivation may seem far-fetched. But I think that Paracelsus' books on guaiacum and on syphilis will convince everybody of the powerful religious motives exerted even upon details of therapy. Nor do I believe that the influence of religious and moral ideas was limited to the sixteenth century. Whoever reads the "History of Venereal Diseases" by Proksch will notice the fact that the author praises the replacement of salivation by less severe treatments from the eighteenth century on as a victory of humaneness. We may well ask whether the humaneness of a treatment has any more to do with its effectiveness in purely scientific terms than has the question of sin and penitence. Probably not. But neither as scientists nor physicians can we live outside the world of culture and morality. Medical therapy as a branch of our civilization necessarily is sensitive to all concepts which make up this civilization. This sensitivity goes far beyond mere legal matters and etiquette. It permeates our thoughts, and if we do not realize this, then history can make us conscious of it.

[26] Cf. O. Temkin, Zur Geschichte von Moral und Syphilis, *Archiv für Geschichte der Medizin*, 1927, vol. 19, pp. 335-337.

DARK CORNERS AND OBSCURE ALCOVES IN MEDICAL HISTORY *

IAGO GALDSTON

When Dr. Shryock phoned and invited me to address the Conference, I not only accepted promptly but seemingly had no difficulty in choosing a suitable theme.

I would speak, I said, on " Dark Corners and Obscure Alcoves in Medical History." At the time I said it, I knew precisely what I meant. But a few days later when I began to work on my theme, I wasn't quite so sure, nor so clear.

That lapse intrigued me; surely I had something in mind when I phrased that title!—What could it have been?

Without the benefit of a couch I began to analyze my mental block.

The first association that came to mind was purely phonetic. I thought that possibly I was traduced by a *Wortklang*; that what I really intended for my theme was " Dark Cronies and Old Fogies in Medical History." That wasn't a bad subject I thought. Just fancy what fun one could have squaring accounts, and getting even! What a Roman holiday for grudges and gripes one could make of such a discourse!

But no—that association wasn't really productive. There followed other associations, which I won't trouble to recite, since they were merely obfuscations—resistance phenomena we call them. Then, after a while, the truth, the cruel reality, flashed upon me, and at once I saw the reason for my block. The title was quite correct, and when I spoke it I really meant to treat of certain obscurities in medical history. Subsequently, however, in the depths of me there was engendered an unhappy awareness that such an exposition was much more likely to show up the deficiencies in *my* knowledge and understanding of medical history than those of history itself. Hence the panicky block—and the first refuge into the humor of Cronies and Fogies.

Since I have a profound respect for the Unconscious, and for its processes, I was intrigued by the transient panic which I experienced. I, therefore, analyzed further this singular experience. True, I do not fancy

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making a willing and deliberate exposition of my ignorance. But on the other hand, I am neither so modest, nor so insecure, nor yet so incompetent as to warrant so much of panic. There must, therefore, have been a something more to it. Well then, I thought, there is the audience, distinguished and learned. So much of criticism as I may direct at medical historiography will apply least to those and to their works who will count among my listeners. All that is true enough. But still it could hardly frighten one. For, thought I, they are my friends and will understand me and my intentions. Pursuing further my train of thoughts and associations I finally rounded out the complex causation of my panic. Basically what frightened me, what my Unconscious knew better than my mindful Self, was the intensity of my dissatisfaction with medical history as it has been written and taught in the last hundred years. It was that and also my awareness that I could more easily indict the defective malefactor than convict him that panicked and blocked me.

I have gone to such lengths in exposing and expounding my emotional and psychological experiences incidental to my tackling this critique of medical history not because I consider them singularly interesting or unique, but, on the contrary, rather because to my mind they mirror a common hazard. Anyone who will in earnest undertake to assess, to evaluate how medical history has been written and taught, particularly during the last 100 years, and notably in the United States, is bound to experience something of the panic I described. I *have* witnessed it in others. Though at times I felt that those others didn't recognize it as panic, and didn't appear to be blocked.

Still pursuing my mental ruminations, I recalled that because of my disaffections with medical history, as it is " writ," I myself authored three works in medical history, and initiated, directed, and assisted in the execution of the most embracive medical historical survey of contemporary medicine extant: I mean The New York Academy of Medicine's thirteen monographs and final report on " Medicine and the Changing Order." Dr. Shryock had a vital share in this work and in the composition of the final report of the Committee.

The reference to my books and to the Committee's works may sound boastful and seem immodest. Let me remind you, therefore, that I was merely reporting on the ruminations of my mind, and one does not require ruminations to be modest. On the contrary one gives them free reign. But even were I to recite them pointedly, it would not be in order to boast, but rather to show that I have been, and am, in earnest, and that I

have long labored in the field. My protest is therefore not a whim of the moment.

And now, what is my protest? There's the rub! I can't phrase it as simply as all that. Reading a good deal of medical history, especially that to be found in the text books, I find myself unhappy and dissatisfied. I can't get oriented as to their view point, and all-too-often they do not provide me with the insights I crave, or they proffer me such as on the very face of things I must reject as superficial, prejudiced, and silly. For example, as to orientation: what is medical history—a history of? The science, or sciences that find application in the practice of medicine? The genesis and development of the corporate *profession* of medicine? The functions in, and relations of, medicine and the profession to society? The changing concepts of health, of disease, and of the relation of man to the universe? Or is medical history simply the cumulative tale of ingenious men, down the ages, and of the fruits of their ingenuity?

The obvious retort that medical history is all of these and more beside, is facile but uninforming. To embrace "all these and more," medical history would need to have a focal point, to achieve a superb integration and to contain as well as to exhibit an organic pattern. Then indeed it would have a viewpoint! Possibly, one of the reasons why medical history is "sometimes interesting but seldom instructive," a complaint frequently heard among the young initiates, is precisely because it is *not* clear what medical history is a history of.[1] Then as to insights! To understand, it is not enough to know that such and such an event took place. One needs also to know *why*, to know in other words the dynamics of the event, its significance in the contemporary scheme of things, its derivation, and its consequences. To comprehend, to grasp "the scheme of things entire" one needs to know the negative as well as the positive instances, the failures as well as the successes, the errors as well as the truths. Indeed I often have the feeling that in medical history the errors are the more instructive. It is on these scores that I most earnestly find fault with medical history, that it is not dynamic, that it sometimes tells "what" and very seldom "why," that it underscores the so-called "victories" and glosses over the "failures," that it is capricious, prejudiced, and erratic. A great deal of medical history isn't history at all, but rather fiction, romance if you please.

[1] Essentially and fundamentally medical history should be oriented around the relationship of two individuals, and in time their extensions, namely the individual who is ill, who seeks advice, information, direction and treatment for illness and health, and that other individual, the person to whom he turns.

There is implied in these criticisms a number of implications which I want to disavow promptly. Thus, when one opines that a something isn't what it pretends to be, implicit in such an opinion is the knowledge of what that thing would be if it were "the real McCoy." Now I have no precise knowledge of what medical history *would* be, were it not "fiction and romance." In other words I do not really know *that* which medical history does *not teach*. Yet that despite, I am convinced that much of what it *does* teach is to a large extent inadequate, corrupt, and misleading. I know this about medical history chiefly by its omissions, by its obscurities, and more intimately because I have tested it in relation to a few points that intrigued me and which I have studied, so to say, on my own.

When Fielding Garrison, writing in the Preface to Osler's *The Evolution of Modern Medicine*, describes medical history as the tale of "The slow, painful . . . evolution of medicine from the fearsome, superstitious mental complex of primitive man, with his amulets, healing gods, and disease demons, to the ideal of a clear-eyed rationalism"—I sense in this pronouncement more "*Dichtung*" than "*Wahrheit*," more of fancy than of clear-eyed rationalism.

Osler himself appears to have shared in this romantic vision of history, for he inscribes this passage from Walter Maxon at the head of his work. "A golden thread has run throughout the history of the world consecutive and continuous, the work of the best of men in successive ages. From point to point it still runs, and when near you feel it as the clear and bright and searchingly irresistible light which Truth throws forth when great minds conceive it." What sweet, seductive nonsense! But the trouble is that much of medical history is written in just this persuasion. The golden thread *is* traced, and the rest of the fabric overlooked and neglected. This is what I had in mind under the heading of "Dark Corners and Obscure Alcoves in Medical History."

I'll cite an example at random—one that has interested me a long time. It concerns the history of surgery. You know how greatly it declined, and how it fell into disrepute during the medieval period. You will recall that it was said of John Hunter that he made surgery respectable and gentlemen out of surgeons. Fielding Garrison, leaning heavily on the judgment of Sir Clifford Allbutt (*The Historical Relations of Medicine and Surgery*, 1905), charges the decline of surgery on the Arabists and the ideas peculiar to oriental religions, bearing on the uncleanliness of the human body. This tenet, Garrison expounds, gained hold of the scholastic and monastic minds, and led to the famous edict of the Council of Tours,

"*Ecclesia abhorret a sanguine*" (1163). It would appear then that the Church, so to say, can be charged with decline and abasement of surgery during the middle ages. I have never been persuaded that such was really the case. That the Church abnors the shedding of blood is interpretable in many ways, other than as a prohibition of surgery. That the Church may have wanted its clerics to devote themselves chiefly, if not exclusively, to the services of the Church is also understandable. That the Church did not want the itinerant surgeon to masquerade in the habit of the cleric, is also reasonable to assume. Indeed Tiraboschi, the erudite and informed Italian chronicler and historian, tells us as much. Granted further that as the Church withdrew its learned and skilled men from the practice of surgery, the art suffered. But all this is a far cry from the "death blow" charged to the Council of Tours.[2]

And apropos of this it has interested me to find that not one of the historians gives the full passage, nor all the argument. Nor are the historians of one accord—as to when and by whom the practice of surgery by the clergy was forbidden.

A host of authors, including Kurt Sprengel, Claudius F. Mayer, Ernst Gurlt, T. Clifford Allbutt, Cabanès, Andrew D. White, and Gottfried Lammert, credit the prohibition of the practice of surgery by the clergy to the Synod of Rheims (1131), to the Council of the Lateran (1139), to the Council of Montpellier (1162), to the Council of Tours (1163), to the Council of Paris (1212), to the Council of the Lateran (1215), to the Synod of Clermont (1130), and to other Church Councils at other times.

Here is a fascinating problem, not only in the light of what happened in the medieval period, but also in the perspective of the more recent events; for assuredly if surgery had once been despised, it now is pre-eminent among the specialties—even above psychiatry—as witness: psycho-surgery! The problem even transcends surgery itself. It involves among other things the teaching and the practice of medical technologies, among the which I would count, be it noted, dentistry, massage, and manipulation, and all those other practices which involve not merely knowledge in the abstract but also specific skills to be exercised by the practitioner in person. One crucial point involved here is this: that

[2] "The Rheims (A. D. 1125) and Lateran (A. D. 1139) Councils restricted the surgery of the clerical or, in other words, of the educated class, and no doubt feudal ideas did no less to abase its services; it was at Tours however that the sinister and perfidious 'ecclesia abhorret a sanguine' was first pronounced." (Sir Clifford Allbutt, *The Historical Relations of Medicine and Surgery*, 1905, p. 22, n. 2.

abstract knowledge can in a large measure be learned from books, but skills can be acquired chiefly in an apprenticeship to some master. There are autodidacts even among the technicians, but they are most rare. This problem I cite in brief as one of those dark corners in medical history, intended in the title of this paper.

I have also been intrigued, for reasons which I am sure can be easily fathomed, by the so-called medical mavericks. That is not *my* designation of them; that is the way they are described in medical history. I have in mind such personages as Paracelsus, Mesmer, Gall, Van Helmont, Stahl, and Hahnemann, to name but a few. It is interesting that time, experience, and keen scholarship have vindicated many of these so-called medical mavericks. But the "keen scholars" are the *avant garde* with whom academic history hasn't as yet caught up. Thus, despite Freud and psychoanalysis, and all the cumulative experiences with hypnosis, suggestion, and psychosomatic medicine, Mesmer is treated in one authoritative and recently reissued history of medicine (Castiglioni, p. 588) as a bizarre soul who adopted the ancient idea of curing by the imposition of hands and compounded it with some of the ideas of the medieval astrologers.

As an example of the errors to which collective suggestion can drive even intelligent scientists, the above mentioned historian, still in connection with Mesmer and Mesmerism, cites the case of a German physician G. D. Kieser (1778-1862) who, to quote the writer's exact words "believed in a solar brain which was active during the day, and a 'telluric ganglion,' a sort of lower psychic centre which regulated spiritual functions during the night" (p. 590). Ye shades of Freud! If this be the "extreme of collective suggestion" I am for more of it. Here is a shrewd guess—or could it be an insight?—into the profoundities of neuro-psychic function.

But it is not errors in judgment that trouble me. None of us is immune to erring. It is rather the easy fashion in which judgment opinions are expressed by historians and the little trouble they take to expound how and why the "errors" were made, and why they prevailed. Error has its causes, its history, no less than truth, and it does not suffice to credit truth to "the best of men in successive ages" and error to their opposites. Error has a function. It comes into being by necessity, and it is no less the obligation of the historian to account for as to label error. I suspect, did they trouble to do so more often, they would label fewer events as errors. They might discover also that the representation of The History of Medicine as a parade of successive truths is as false as it is romantic.

I assume that each of us has his favorite obscurities; those portions of medical history which he would like to see more brightly illuminated. I shall offer you a sampling of my own. As I describe them I am aware that there are some, even among you, presently working on these scores. That awareness affords me warrant and encouragement, for clearly I am not alone in feeling the need for more light "in certain corners." One of my favorite obscurities and an issue which to my mind is of transcending importance is that of Methodism. The opposition between Hippocratism and Methodism—first, to our knowledge, mirrored in the contents of the schools of Cos and of Cnidus—remains of signal importance to this very day.

We do not concurrently speak of Methodism—nor, save for a few advocates, of Hippocratism. We use such terms as specific, holistic, and ecological. But whether we know it or not we are in effect still pursuing the issues that divided the partisans of the schools of Cos and of Cnidus. Historically we know that the School of Cos prevailed, and that Galen who had belabored the Methodists, reigned "supreme" until he was dethroned by the combined efforts of Vesalius, Paracelsus, and Harvey. But Methodism was then revived in the chemotherapy of Paracelsus, and in his initial efforts at a revised nosography. The iatrochemists, van Helmont, Sylvius, and Boyle, and also Sydenham, who further advanced nosography, were among the early proponents of modern Methodism, and the schools of pathological anatomy cultivated in Italy, England, France, Germany, and Austria, ultimately assured its triumph.

It is true that Methodism was challenged by the hygienists and sanitarians of the early nineteenth century, by the Romantic School of Vienna, and lately by the ecologists. But in the main Methodism still prevails today.

One of the fascinating problems in the history of the early decline and of the later triumph of Methodism is precisely the reasons for its early decline. Why, in other words, did the School of Cos prevail?

I am persuaded that did we understand what factors in the early centuries were inimical to its progression, what "climate of opinion" and what "nature of knowledge" proved insalubrious for Methodism, then we would the better understand its revival and perdominance in later centuries. We seem, however, to know little on these scores. Despite the fact that Methodism counted among its adherents and protagonists certain of the most illustrious among the ancient physicians, including Asclepiades, Themison, and Soranus of Ephesus, we do not know why the school de-

clined. We are merely told that in the second century A. D. Galen came upon the scene, and that he marks a culminating point in the ancient history of medicine. (Castiglioni, p. 220.)

The question remains: what did Methodism require that the ages then could not provide?

You will soon perceive that such other "dark corners and obscure alcoves" as I shall mention in the remainder of this presentation, are somehow related to this first issue. And if you think on these scores you will also perceive that it could hardly be otherwise.

I would touch now on alchemy. Few chapters in medical history, or in the history of science, are more tenebrous, more shadowy and obscure than those dealing with alchemy. And in that connection I am mindful of that cultural historical group and period, from which the term alchemy stems—the Arabists. So obsessed are we with the alleged charlatanism of the "distillators," that we miss out on the significant query: What inspired men to attempt the dismemberment of the material world? Except by a few, rather esoteric medical historians, the Arabist period is treated cavalierly. The Arabists, it is said, were copyists, collators, commentators. They disdained anatomy. They were dabblers in drugs, interested in the exanthemata, and in diseases of the eye. I know that in the Western realm, good Arabists are rare and that this handicaps deep and extensive research in Arabian Medicine.

Yet even that despite, I fear that some of the Christian's disdain for the infidel taints our evaluation of the Arabists and of Arabic medicine. The Thousandth Anniversary of the birth of Avicenna, which we celebrated but recently, had this one salutary effect on some of us—that it embarrassingly showed up our ignorance not only of this man, who in his encyclopedic embrace is matched only by Aristotle, but of the whole period, in which he was the brightest luminary.

We rattle such high-sounding phrases as these:

> The precious flower of Hellenic medicine found in the Arab realm a firm and fertile soil, and took root therein and flourished. The well-merited and enduring fame of Rhazes, Haly Abbas and Avicenna, and of the Jewish physicians and philosophers Avenzoar the Cordovan, and Rabbi Moses ben Maimon, of whom it is said, "From Moses to Moses, there is none like Moses," are witness to the greatness of Islamic culture. Of shorter span but with a comparable brilliance, Arabic medicine with that of Greece, serves as foundation to modern medicine. But four hundred years it flourished, from Masawaihi to Ibn Sina, but in this period Arabian medicine gathered together and rendered in concise and explicit text the medical knowledge of antiquity, and furthered diagnosis, parasitology, dietetics, pharma-

cology, surgery, dentistry, ophthalmology, hospitalization and clinics. Anatomy, gynecology, and obstetrics alone were neglected, for the Koran would not allow them.

This highfaluting extract is taken from an article of mine, entitled "Medical Explorers of Arabia," given before the Section of Historical and Cultural Medicine of The New York Academy of Medicine, back in 1937. As I reread it, I must confess I realized that the names are but names to me, and that all in all, it is but a dimly discerned pattern.

The Arabists and alchemy logically lead me to Paracelsus, of whom Temkin wrote so penetratingly in the article entitled "The Elusiveness of Paracelsus." It seems paradoxical that one should list Paracelsus among the so-called obscure corners in medical history, for few personalities in medicine have attracted as much attention, at least in recent decades. Indeed the Paracelsian literature is almost overwhelming. That despite, Paracelsus will remain a shadowy "corner," and there is more than ample justification in Temkin's characterization.

Here indeed is a crucial instance in warrant of my criticism of the ways in which medical history is written. There is not full understanding of Paracelsus possible unless one sees him in the ample background of his times. Paracelsus belonged to what might be termed a nodal period in history. Contemporary with Paracelsus were a host of other Paracelsian characters: Luther, for example, and Rabelais. To understand Paracelsus, to appreciate his significance, one needs to understand how much the times were then "out of joint." One needs to understand in what ways and for what reasons the then current vernacular—what we would today call the patterns of communication—was inadequate to express, to convey, to make intelligible, the ideas and concepts emergent in those changing times.

Dante wrote the *Divine Comedy* in the vulgar tongue, because the Latin of Cicero and of Virgil could not transmit or make intelligible the thoughts and inspirations of his divine masterpiece. The contorted language of Paracelsus, the cascading verbiage of Rabelais, the robust gutter vernacular of Luther are not accidental phenomena, any more than their revolutionary propoundments were accidental, and to understand the men, their languages and their thoughts, one must understand the full setting of the age that witnessed them.

What folly it is then to wrestle with the issue: was Paracelsus a quack, or was he a transcending genius? How much more profitable would it be to understand his age, and to understand how he expressed and served his age.

There is another obscure corner in medical history, which I would mention only in passing. This concerns the matter of epidemiology and epidemic diseases.[3]

J. F. C. Hecker, in his inspired "Address to the Physicians of Germany"[4] laments the neglect of this field. "The medical men," wrote Hecker, whose "sole business is with life . . . are expected to have a perception of life, as it exists individually and collectively" (p. ix). And yet, so laments Hecker, "Even those noble institutions, the Academies, in which the spirit of the eighteenth century still lingers, and whose more peculiar province it is to explore the rich pages of science, have not entered upon the history of Epidemics, and by their silence have encouraged the unfounded and injurious supposition, that this field is desolate and unfruitful" (p. xv).

Seemingly this neglect has been remedied, and yet, though there is a science called epidemiology, which is currently taught in the schools of medicine and in those of public health, this science is really and in the main little more than arithmetic applied to the mass man. It has little or no appreciation of the epidemic constitution which, to use a Paracelsian term, is the "quintessence of epidemiology." On this score there is but one thought I would venture at this time. It has been aptly observed that medieval thinking was concerned with the universe and overlooked the individual. With the Renaissance the individual came to the fore, and the universe receded.

I now come to one of my pet obscurities: the treatment accorded the humanitarians, the hygienists, and the sanitarians of the early 19th century, in juxtaposition to the bacteriological scientists of the latter part of the 19th century. As a subdivision of this large period I would cite that chapter of medical historical experience which has been so inaptly labelled as the "Romantic School of Medicine." A great deal has been written on the Romantic School but most of it, I would say, is of an "archaeological character," that is in the nature of a digging up the remains. Here again, as in the case of Paracelsus and his age, to understand what happened, one must visualize the occurrences against the turmoil of the period. Both 1848 and 1859 were, so to say, nodal periods in history. The revolutionary turmoil of 1848 marked the end of Romantic Idealism which

[3] I have elaborated upon it in my article—"Jean Antoine François Ozanam, 1773-1837, Soldier, Physician, Epidemiologist" (in *Bulletin of the History of Medicine, Supplement No. 3*, 1944, pp. 89-102).

[4] In *The Epidemics of the Middle Ages*. From the German of J. F. C. Hecker, translated by B. G. Babington. London, The Sydenham Society, 1844; pp. ix-xv.

drew its inspiration from the French Encyclopedists, and the French Revolution. The year 1859 witnessed the pronouncements of the new evolutionary doctrines.

At the end of the sixth decade of the last century, there came to the fore the pronouncements of Darwin, Marx, and Spencer. The impacts of those pronouncements in biology, sociology, and economics are currently witnessed in truly world-shaking events.

This sketchy review has brought me to a point where I am, literally, "treading on my own heels." What of the history of contemporary medical experience? Has it too its dark corners and obscure alcoves?

Contemporary history is chiefly journalistic in nature. But even journalism can be either superficial or penetrating and well oriented. I think some of the criticism which I have leveled at the history that was written time past, can be applied with warrant to contemporary, journalistic, medical history, though there are these extenuating circumstances to be noted that a short perspective "favors distortion."

I think of the antibiotics as a pertinent example: How are the antibiotics to be understood historically? Did it all "begin with Fleming," or can we trace the derivation of the antibiotics to the studies and preoccupations of the agronomists? What of the old contest between those who advocated the galenicals and those who favored iatrochemicals.

The motto of my bookplate reads: "*Wider den Tod ist kein Kraeutlein gewachsen.*" It is taken from an ancient Germanic bookplate. While the assurance is that against death no herb can prevail, there is the implication that herbs *can* prevail against all other disorders and diseases to which the human flesh is heir. If the universe is indeed a balanced and self-righting ecological system, can it then be said that this motto phrases a folly?

I think me also of shock therapy. I think of modern psychiatry, Freudian and otherwise, and I wonder if it could not be better understood were we to view it in the perspective of primitive medicine, and against the concepts fostered in the past, and labelled "vitalism." And apropos of this, I think it is noteworthy that one of the most enthusiastic and penetrating students of the history of alchemy is Carl Jung, the psychiatrist. I can only mention but not elaborate on the scintillating historical problems embraced in shock therapy and in the work of Hans Selye on "Stress and Deprivation."

At this point I am overwhelmed by the awareness that it is time to put an end to my rambling exposition. There is, however, one final point I

must make: A good deal of what I have said strikes me as in the nature of a plaint, carrying the overtones of criticism, fault-finding, and blame. Looking back upon my presentation, I wondered who it was that I blamed. But a scrupulous review of my motives showed that in actuality I was blaming no one. If I criticize at all, it is not the workman, but only the end result, and I do not charge my disaffection with the end result to the man who labored on it. On the contrary, I have a sense of profound admiration and great gratitude for the historians of medicine in whose schools of thought I have been tutored.

I think a survey of the dark corners and shady alcoves in medical history would lead up to this rather pertinent inquiry: Who teaches the teachers that teach medical history? This, incidentally, is the thesis which I proposed to Henry Sigerist back in 1938 under the title "The History of Medical History." This is the theme to which Sigerist reverted in the opening chapter of his *A History of Medicine*.

I think it is urgent that we give thought to this problem, and this seemed to me to be the most fitting place and the most appropriate occasion to think thereon. What are the requisites of a good medical historian? What aptitudes need he possess? What competences need he cultivate? How should he be trained? Supposing I were young again and came to this great and learned institution and said, I want to be a medical historian. What curriculum would I be counselled? In these relations we might ask further, "Is the writing of medical history a singular discipline, or is it a discipline in which a number of schools need must cooperate; the schools of history, the schools of the biological sciences, of economics, of sociology, and of politics?"

I should like to believe that we have come to a point where the teaching of the teachers of medical history—and under this heading I would include the teaching of the research workers in and of the writers of medical history—would be the enterprise of the university rather than of a single school. I hope that when this eventuates there will be fewer dark corners and obscure alcoves in history, and that the justifications for such discourses as mine of this evening will be less frequently and less fully warranted.

THE STATUS OF HISTORICAL PERSPECTIVE IN PSYCHIATRIC INSTRUCTION *

LEO KANNER

It is undoubtedly a sign of progress that medical schools in this country take justified pride in undergraduate instruction in the history of medicine. It is equally encouraging to notice that, at least in some centers, curiosity about the past has led to valuable research which is contributing to a better understanding of the continuity and, if I may use the expression, the dynamics of the art and science of healing. The student, the general practitioner, and the specialist who have access to a retrospective evaluation of developments in their areas of endeavor gain a degree of perspective which can hardly be obtained in any other manner.

The question has arisen whether historical teaching is limited exclusively to a special department set up for this purpose or has been integrated in the contents of instruction in the various branches of a medical school. In other words, do the instructors in the specialties think of the department of the history of medicine as a sort of a monastic institution remote from their own teaching activities or is there a tendency to incorporate at least the fundamentals of historical information in the consideration of the present concerns of the specialty?

It has been my custom in the course of years to ask medical students and psychiatric residents to "guess" in approximately what year Emil Kraepelin died. It was the exceptional person who named a date after 1850. Amazement had no bounds when the audience was told that Kraepelin died in 1926 and that his monumental work was published in the 1890's. One explanation of this discrepancy may well lie in the fact that psychiatry has advanced so rapidly of late that to the younger people the early pioneers must seem to have existed long before they really did exist. But this in itself represents a distortion of historical perspective.

This bit of mistaken chronology led to a more generalized question: What do the young and middle-aged psychiatrists of today know about the major contributions to the facts and theories which have influenced

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the development of their specialty? To what extent and in what manner have their preceptors impressed them with a respect for the efforts which have helped to make psychiatry what it is today?

An attempt was made to satisfy this curiosity by sending the following letter to a number of persons in charge of psychiatric hospitals:

Dear Dr. ———:

For some time, I have been interested in an attempt to ascertain the scope of "background orientation" on the part of the younger generation psychiatrists. I feel that the teaching of contemporary attitudes and theories is improving steadily and there is a reasonably good appreciation of the people who have introduced or advocate modern ideas and practices. However, I am not sure about the younger group's awareness of contributions to our field of knowledge made by the "giants" immediately preceding the newcomers of today.

I have tried to find some way which might give me the desired information that might—if adequate—serve as a stimulus to some suggestion regarding the introduction of a modicum of historical considerations in a psychiatric teaching program. It has occurred to me that it might perhaps be the easiest and least time-consuming way to submit during a staff conference a list of names to the staff members present, asking them to check those names with which they are familiar and those which have no meaning to them and also to state in a few words the outstanding contribution of the person named. The list is then to be returned at the same session to the person who presides.

I wish to make it clear that the participants are not to sign their names to the sheet and that there will be no mention or comparison of the places from which the returns will come. The purpose is definitely not one of singling out any individuals or schools but to get a general survey of the knowledge of psychiatric history on the part of the young specialists of our day.

I have discussed the matter with a number of teachers and hospital superintendents who readily declared their willingness to submit the list to their staffs at a conference. I have also received the approval of the list by Dr. Owsei Temkin, the Johns Hopkins medical historian, who is just now giving a course on 19th century psychiatry. I have checked the list with him and others.

The list of names is enclosed with this letter. I shall be grateful if it could be returned to me at your earliest convenience.

The list contained the following names:

Karl Abraham
Gustav Aschaffenburg
Hippolyte Bernheim
Karl Bonhoeffer
Sandor Ferenczi
Ewald Hecker
Pierre Janet
Karl Kahlbaum
Karl Kleist
Jean Piaget
Morton Prince
Wilhelm Stekel
Daniel Tuke
Julius Wagner von Jauregg
Carl Wernicke

The list of names was followed by two blank columns; one bore the heading: "Known to you?," the other was superscribed: "Known mainly for what?"

All recipients expressed full agreement with the purpose of the survey. No criticism was voiced about the selection of the names, except that one teacher, in a letter accompanying the returns, wrote: "I think this is a nice undertaking of yours but I hesitate in some cases to call the men 'giants.'"

Reports have come in from 17 centers. These include 11 university hospitals, 3 veterans' administration facilities, 2 publicly supported institutions (one state, one federal), and one large privately endowed hospital, all of which have training programs. In addition, the list was submitted at a regional meeting attended by residents and by privately practicing psychiatrists. A total of 294 individual sheets was thus made available for the survey. The range of experience extended from first year residency all the way to "board-eligible" and "board-certified."

The scoring was lenient. Any indication that a name meant anything to the person tested, even the most general identification, was considered as meriting a plus score (for instance: Janet—hysteria; Piaget—children; Bernheim—hypnosis; Ferenczi—one of Freud's followers). Credit, however, was not given if the "identification" was too vague, such as "wrote a book," "prolific writer," "French" (for Janet), or "psychiatrist" (a term used very often without any further elucidation). Nor was any credit given when a person wrote "Yes" in answer to the question "Known to you?" and left blank the space under the heading "Known mainly for what?" or merely wrote in: "Heard of him," "Know the name," "Can't remember," or "Uncertain."

While the list was presented alphabetically, it is reproduced below in the order of frequency of plus scores obtained for each name:

Sandor Ferenczi	263
Karl Abraham	250
Carl Wernicke	227
Pierre Janet	184
Wilhelm Stekel	174
Hippolyte Bernheim	152
Daniel Tuke	151
Julius Wagner von Jauregg	135
Morton Prince	111
Jean Piaget	102

Karl Kahlbaum	91
Ewald Hecker	60
Gustav Aschaffenburg	29
Karl Bonhoeffer	29
Karl Kleist	28

There were 1986 positive identifications out of an ideal total of 4410. All 15 men were known to five persons, 14 to four, 13 to eight, 12 to nine, 11 to twenty, and 10 to twelve. This means that of a group of 294 participants not less than 236 had a knowledge of fewer than ten of the names on the list. Not less than 60, of whom five admittedly had completed three years of psychiatric training, were unable to identify more than three of the names; 9 knew none at all, 10 knew only one, 16 recognized two, and 25 knew three of the names.

A few incidental observations may be of interest. The vagueness of orientation was illustrated in twenty-one instances by misidentifications as a result of klang associations. Nine persons mistook Kahlbaum for Kallmann and thereby connected him with "genetic studies," "genetic research," "work on genetics," "twin studies of schizophrenia," "heredity in schizophrenia," or "constitutional factors in mental illness." Nine others thought of Manfred Sakel when they saw the name Wilhelm Stekel and credited the latter with the introduction of insulin shock therapy. One, confusing Prince and Prinzhorn, declared that Morton Prince was "interested in the art of the insane." One, apparently getting Kleist and Klages mixed up, entered the word "graphology" after Karl Kleist. Janet, mistaken for Jung, was held responsible for the "racial unconscious theory."

There were many misstatements about nationality and chronology. Eleven made an American of British Daniel Tuke and one put him down as the founder of Hartford Retreat in Connecticut. Reversely, two placed Morton Prince in England. Ferenczi was American in the opinion of one and Italian in the opinion of another. One decided that Karl Abraham was an "early American psychiatrist." Two thought that Bernheim was Austrian and two that he was German. Hecker was an American in two entries and a Britisher in one. One connected Morton Prince with the Civil War. Jauregg was pushed back by one into the 17th century which, according to another, was the time of Wernicke's existence, while one each asserted that Wernicke, Janet, Bernheim, and Kleist lived in the 18th century; another thought he knew of Kleist as an "early German psychoanalyst." Three had a vague notion that Wagner von Jauregg had some

sort of connection with syphilis and put down that he described its origin or that he discovered the pallid spirochete.

Kahlbaum, instead of Bleuler, was named by one as the person who introduced the term "schizophrenia," and another, slighting Kretschmer, wrote "Body types" after Kahlbaum. For some reason—or for no reason at all—not less than three associated Janet with "early hospital reform," "humane treatment of psychotics," and "early work on hospitalization for mentally insane" (sic!); two bestowed this honor on Piaget and wrote after his name: "hospitalization of insane" and "modification of asylum care." According to one, Kleist "did for Germany what Tuke did for England and Pinel for France."

One each made Prince, Jauregg, and Ferenczi responsible for the introduction of electroconvulsive therapy. One each made a psychoanalyst of Hecker, an anatomist of Piaget, a neurologist of Stekel, "a surgeon who worked with hypnosis" of Hecker, an "organicist" of Stekel, a "child psychologist" of Janet, a "specialist in mental retardation" of Aschaffenburg, and a "gestalt psychiatrist" of Bernheim. Piaget will hardly agree with the two who stated that he is known mainly for being a psychoanalyst.

Truly amazing is the frequency with which the names of the twelve non-analysts on the list have been brought into some sort of relation with Freud. This happened not less than one hundred times. The entries would indicate that the writers considered it as a sufficient identification if, under the heading "Known mainly for what?," they spoke of a man merely as a forerunner, contemporary, supporter, or opponent of Freud. Even this was often incorrect. Not less than 55 persons spoke of Janet in those terms; of these, 23 thought that they did full justice to Janet when they said that he preceded Freud or simply put down the word "pre-Freud" as his principal attribute; 18 called him a contemporary of Freud and let it go at that; in the minds of 7, he was a teacher of the Master, while one thought of him as Freud's disciple; 5 cited him as a critic, and one as an endorser of Freud. Thirty-one had nothing more to say about Bernheim than that he was a coworker (17), contemporary (2), associate (1), colleague (1), precursor (3), or teacher (7) of Freud. Wagner von Jauregg's place in the history of psychiatry, in the opinion of five, was determined solely by his being a colleague, a coworker, or an opponent of Freud. Six gave Prince the honor of being a contemporary or predecessor. All that two could say about Wernicke was that he was a contemporary of Freud, and one put after Kahlbaum's name the all-important word "pre-Freud."

It is possible to argue that a more appropriate list might have been selected. Be this as it may, it is remarkable that, with the exception of Wernicke (most annotations say " Wernicke's syndrome ") and of Janet, the list is topped by the analysts Ferenczi, Abraham, and Stekel, and that Bernheim follows closely because his name was known to the participants in the survey mainly in connection with their analytic reading. Statistically speaking, the three psychoanalysts have received not less than 34.6 per cent of all the 1986 positive scores, the other 65.4 per cent being distributed rather unequally among the remaining twelve names on the list. The analyst Ferenczi was known to almost twice as many participants in the survey as Nobel prize winner Wagner von Jauregg and to nine times as many as Karl Bonhoeffer or Gustav Aschaffenburg.

How do the teachers themselves feel about the results of this inquiry? One of them wrote: " We have a feeling in tune with the purpose of your questionnaire that the orthodox roots of present-day psychiatry tend to be neglected in our educational program in psychiatry." Another stated: " I regret to say that the results appear to confirm . . . the lack of awareness of the contributions made by individuals in the last century." Still another wrote: " I certainly feel that they (the younger psychiatrists) should have more knowledge concerning the contributions which were made by notable contributors to psychiatry." One, sending back the forms checked by members of his staff, expressed the hope " that other residents have done better." One lamented: " Unfortunately, the results would seem to indicate that your concern about the younger group's awareness of earlier contributors to our field of knowledge is well-founded." A prominent teacher of psychiatry remarked: " Thank you for asking my help about the matter of attempting to ascertain how much the young men know about the former great contributors to psychiatry. My impression is that they do not know very much about them."

A number of questions arise as a consequence of the survey. In the first place, does it really matter whether a surgeon has ever heard about Ambroise Paré, an immunologist about Edward Jenner, a radiologist about Wilhelm Konrad Roentgen, or a psychiatrist about Wagner von Jauregg? Can one not be a competent specialist without the knowledge of the professional antecedents?

After all, a person can conceivably be a good, respectable, and well-functioning citizen without any information about the events and personalities that have played an important part in the development of the culture into which he was born. Still, it has been found wise and expedient to

impart to every school child an orientation in the history of his nation and, moreover, at least in a broad framework, of mankind generally. The underlying thought is that we know better where we stand at present if we have some idea about how we got there.

If any proof of this be needed, this survey points it up as eloquently as anything possibly can. The poverty of background orientation is no doubt responsible for an attitude among many of the younger men which seems to indicate that, as far as they are concerned, psychiatry just began when they themselves appeared on the scene; there may have been some "old fogeys" before but it hardly pays to remember even their names. Psychiatry is viewed by the majority as being under the sign of Freud. This has obviously led to a one-sided identification of psychiatry with psychoanalysis and a rather supercilious disregard of anything and anybody not directly connected with the analytic school and its founder.

Yet it would not be altogether fair to lay all criticism at the door of the young men themselves. If, as the survey shows unmistakably, much is to be desired in matters of historical perspective, is it not time to review the manner in which we, the instructors, orient and guide our trainees?

I recall the early examinations of the American Board of Psychiatry and Neurology. Dr. C. Macfie Campbell invariably quizzed the candidates about the pioneers in the field and did not hesitate to fail them if their ignorance was too patent. This had the effect that many of the applicants knew that at least one of the examiners demanded such information and made a special effort to get it. There is now a better opportunity to obtain it through reading than existed then. There is the excellent book on the history of medical psychology by Zilboorg and Henry. A sizable portion of Muncie's textbook of psychobiology and psychiatry is taken up by chronological tables which show the development of concept and clinical work in connection with the various reaction types. This is perhaps also the place to mention the fact that the Psychiatric Dictionary by Hinsie and Schatzky lists thirteen of the fifteen names chosen for our survey; Kleist and Piaget are omitted and will, I hope, be included in the next (third) edition.

As far back as in the fourth pre-Christian century, Hippocrates said categorically: "The physician should know what the physician before him has known if he does not want to deprive himself and others." One is also reminded of Goethe's much-quoted statement: "The history of a science is the science itself."

These admonitions have apparently not been heeded too well in the

instruction of psychiatry. I have no way of knowing whether or to what extent a similar lack of perspective exists among the young practitioners of the other medical specialties. Analogous surveys might be helpful in trying to ascertain this.

It would seem that the responsibility for introducing a more solid background orientation might best be divided among the department of the history of medicine and teachers of the specialties. Greater interest and better information might be provided if each clinical department and even the pre-clinical branches invited members of the department of medical history to give at least a brief course in the development of the specific discipline, to be delivered in the clinic and attended by all persons in training as an intrinsic part of the instruction. At the same time, the teachers of the specialties might be expected to integrate at least a certain amount of historical perspective in their clinical teaching. Could not a number of seminars be devoted at each clinic to the broadening aspect of historical orientation? Every young physician knows that a careful anamnesis of each patient is indispensable for an adequate understanding of the present status. Could he not be helped to appreciate the value of an "anamnesis" of his specialty as an important guide to the understanding of *its* present status? The cultivation of such an attitude would help to remove from the younger generation the thought, which certainly seems to be current among the young psychiatrists, that the history of their specialty is irrelevant to their knowledge and, at best, indulged in as a private hobby by a few individuals.

Two years ago, a new association was formed, which interests itself specifically in child psychiatry. The duly appointed program committee suggested that some papers should emphasize the contributions of early pioneers in this field, which in itself is of relatively recent origin. This suggestion was turned down flatly by the president and the council of the association. The general idea of historical papers was approved but anything of historical value, in the eyes of this group, could not possibly have taken place before the advent of psychoanalysis and the so-called clinical team, viewed as something like the Holy Trinity of mental hygiene clinics.

What better example can there be of the distortion of historical perspective?

It is hoped that the survey here presented might give the impetus to greater respect for the men who have paved the way for us and lead to a more integrated understanding of the past's contribution to the making of the present.

THE FIRST RECORDED EPIDEMIC OF PNEUMONIC PLAGUE: THE BIBLE, I SAM. VI *

S. H. BLONDHEIM **

Retrospective diagnosis of diseases and epidemics described in the Bible and ascribed to supernatural or even natural causation is at best uncertain. Many symptoms of pathognomonic importance undoubtedly escaped notice, or their significance was not appreciated, so that descriptions of diseases in the Bible are frequently too general or vague for diagnosis. Even where specific symptoms are mentioned, their meaning is often obscured in etymological confusion. Rendering the problem still more difficult is the possibility that some diseases of antiquity may have died out without ever having become known to medical history.

Occasionally, however, the diagnosis of a disease described in the Bible may be fairly apparent. Such is the case of the Philistine epidemic described in the fifth and sixth chapters of the First Book of Samuel. Most medical authorities (1-15) and modern biblical scholars (16-19) alike agree that this deadly disease which affected a maritime people, which was characterized by swellings in the "secret parts," and which was associated with swarms of mice or rats (*achbar*) was bubonic plague.[1]

The few who dissent include Neustätter (20-22), whose own interpretation was never published, and those authors (23-25) who have followed the often unreliable Josephus (26) in suggesting the diagnosis of (bacillary) dysentery. According to these authors the "swellings in the secret parts" were hemorrhoids. This interpretation has been effectively answered by MacArthur (14) who pointed out that "dysentery does not cause piles, people do not die of piles, and an epidemic of piles in any circumstances . . . is incredible; rectal prolapse is an occasional complication, but it is not common enough to colour the general picture of the disease." These authors reject the diagnosis of plague on the grounds that mice can not spread the disease. The argument is invalid since the word *achbar* signifies not only "mouse" but "rat" as well (27).

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[1] The buboes are variously translated from the original Hebrew *apholim* and its later Massoretic substitution *t'chorim* as "emerods" (hemorrhoids), plague-boils, swellings, or tumors.

Furthermore, it has been shown that the rat was present in Israel in the neolithic period (15).

The purpose of the present paper is to draw attention to the rarely noted epidemic of the Israelites of Beth-Shemesh (28) which closely followed the outbreak of plague among the Philistines. This epidemic, for reasons to be presented, appears to have been pneumonic, rather than bubonic plague, and thus constitutes the first recorded outbreak of this disease in medical history. It occurred 31 centuries ago (29). No other accounts suggestive of pneumonic plague are found until the plague of Justinian in the year 542 (8).

According to the biblical account, an epidemic struck the Philistines after they captured the Ark of the Covenant from the Israelites. The disease spread successively to each of the cities to which the Ark was taken, the last being Ekron. The Philistines, convinced that the wrath of the God of Israel was responsible for the plague that followed His Ark in its exile, returned the Ark to the Israelites. In addition, they sent as propitiatory offerings golden images of their buboes and of the "mice which destroyed the land." [2]

A deputation of Philistines brought the Ark and the golden offerings on a cow-drawn cart to Beth-Shemesh, the Israelite border-town nearest to Ekron. Here the cart was burned, and the cows sacrificed in its flames. Only after this ritual was completed did the Philistines withdraw to their own land (30). Thus, they remained at Beth-Shemesh for a significant period of time.

At this point in the narrative, in contrast to the fairly long and circumstantial account of the Philistine epidemic, comes very brief mention of the sudden death of "70 men, 50,000 men" of Israel at Beth-Shemesh. Their offense was that they "had looked at the Ark of the Lord." [3]

The biblical text is obviously defective in the statistical phrase used.

[2] Some authors freely interpret the phrase "the mice which destroyed the land" (I Sam. VI, 5) to mean that a severe epizootic occurred among rodents, killing many of them (1). Though the Septuagint refers to the plague of rodents more fully than does the Bible, it fails to resolve this point. The phrase in question has even been assumed to indicate the recognition by the ancients of the causal relationship between swarms of rodents and the spread of disease among human beings (8).

[3] "And He smote of the men of Beth-Shemesh because they had gazed upon the Ark of the Lord, even He smote of the people seventy men, fifty thousand men: and the people mourned because the Lord had smitten the people with a great slaughter." I Sam. VI, 19. According to the Septuagint: "And the sons of Jochoniah rejoiced not with the men of Beth-Shemesh when they saw the Ark of the Lord; and He smote among them seventy men."

The grammar is imperfect (the copulative *vav* is missing between the "70 men" and the "50,000 men") and the rhetorical form is atypical: the "70 men" precedes the "50,000 men," and the word "men" is repeated (17). For as small a town as Beth-Shemesh must have been, the death of only 70 men would have been a severe blow. According to some commentators, the additional 50,000 men may constitute a textual gloss (16-18). The medieval Jewish exegete, Rashi (31), in accordance with one of the Talmudical explanations (32), interprets this difficult passage as meaning that 70 men died, whose worth was that of 50,000, which would imply that among the victims were the elders and important men of the community.

As has been pointed out, there is extensive agreement on the identification of the Philistine epidemic as bubonic plague. Biblical commentators and medical authorities, however, have directed comparatively little attention to the subsequent epidemic that occurred among the Israelites at Beth-Shemesh. While this epidemic was obviously related in some way to the Philistine epidemic, the two differ in time, place, and symptomatology, and should not be confused with each other. Simpson (3) failing to recognize the differences between the two epidemics, states that plague occurred in the land of the Philistines and that the "inhabitants of the cities of Ashdod, Gath and Ekron, as well as those of Beth-Shemesh, were smitten with 'emerods'." However, it must be pointed out that there is no mention in the biblical text of buboes (emerods) occurring among the Israelites in Beth-Shemesh. Strong (12) also confuses the two epidemics. While identifying the Philistine epidemic as the first recorded outbreak of bubonic plague, to indicate its severity he gives the mortality statistics of the Israelites at Beth-Shemesh.

The other authors who discuss the Israelite epidemic recognize that it was distinct from the Philistine epidemic. Thus, Preuss (5) speculates on the possibility of a connection between the two epidemics, but comes to no conclusion. Allen (4) suggests that the Philistine disease spread to the Israelites because "there was no sanitary precaution in the Levitical code to prevent spreading of the disease." Crawford (6) considers the two epidemics to have been separate outbreaks of the same disease: "when the plague of Ashdod falls on the Israelites, God's chosen people, it is perplexing, for knowledge of contagion and communicability is as yet unborn." Holmes (9) also believes that there was a spread of bubonic plague from Philistines to Israelites.

An earlier study, that of Tidswell and Dick of 1899 (1) is by far the

most complete and lucid analysis of the biblical plague story. The authors, like Allen and Crawfurd after them, ascribe the Israelite epidemic to the spread of bubonic plague from the Philistines, although they note that no symptoms of the Israelite epidemic are given in the text. In their account they refer to the details of Levitical prophylaxis of which Allen (4) and Crawfurd (6) are apparently unaware. "That the disease, though introduced, did not spread among the Israelites is not surprising. The Beth-Shemeshites practiced, albeit inadvertently, the best possible means of disinfection when they burned the cart and the oxen.[4] Their dread of pollution from a corpse[5] would render them most careful in dealing with bodies, clothing, etc., of those who died. The Ark itself was put into seclusion (isolation) for 20 years at least, and no doubt was most circumspectly handled by the men conveying it. . . ."

There are, however, definite objections to the unquestioning assumption that the Israelite epidemic was bubonic plague. Attention is called to the following points:

1) Although the Philistine epidemic occurred in a hostile foreign land, the intimate details of this epidemic, such as the buboes, the swarms of rodents, and the milder nature of the disease at Ekron, were known to the Israelites and noted in the Bible (33). Hence, it is reasonable to believe that the occurrence of buboes or swarms of rodents among the Israelites would certainly not have escaped notice. This omission from the biblical text is presumptive evidence that buboes and the presence of rodents were not characteristic of the disease among the Israelites.

It cannot be assumed that original references to buboes and rodents among the Israelites might have been deleted from the record lest the chosen people be revealed to have suffered from the same loathsome disease as the idolatrous Philistines. The Bible is notably lacking in reticence when dealing with the faults and sins of the Israelites and their heroes. Furthermore, there is a precedent for Israel's suffering from the same diseases as its enemies, and from buboes specifically. It occurs in Deut. XXVIII, 27, and is the only other place in the Bible where the word for buboes, *apholim*, appears: "and the Lord will smite you with the boil of Egypt, and with the bubo, and with the scab and with the itch, whereof thou canst not be healed."

[4] The cart was drawn by milk cows, recently calved, not oxen, a point of significance from the supernatural aspect of the biblical account. According to Rashi, only divine compulsion would have caused the cows to leave their calves and carry the Ark back to the Israelites.

[5] Cf. the "Levitical Code," Lev. XXI, 1 and XXII, 4. Also Numbers XIX, 11-16.

2) The mortality among the Israelites was apparently much higher than that among the Philistines of Ekron from whom the disease might be assumed to have spread. At Ekron recoveries were sufficiently numerous to be recorded in the text (33), but no mention is made of recoveries among the Israelites.

3) From the curt description of the Israelite epidemic it may be inferred that it was of short duration and that the victims died rapidly without noteworthy symptoms.

From consideration of these points we may assume that the episode at Beth-Shemesh was not bubonic plague. The following facts support the author's opinion that the outbreak was one of pneumonic plague.

While the mortality of bubonic plague varies from 60-90 per cent (untreated), pneumonic plague is almost invariably fatal, so that recovery casts doubt on the diagnosis. Although bubonic plague lasts 4-7 days, the duration of pneumonic plague is only 1-3 days, death frequently occurring as early as 16 hours after the onset of symptoms.

Hemoptysis is the only symptom of any degree of specificity in pneumonic plague, but it is neither profuse, nor uniformly present. In describing an epidemic, Heggs (34) listed five symptom complexes. One of these included only fever, dyspnea, and chest pain, and did not include hemoptysis. Gorelik (35) found that hemoptysis was an infrequent and minor symptom in the many cases of pneumonic plague that he observed in Egypt and Syria. Inguinal buboes do not occur in pneumonic plague and cervical buboes occur but rarely.

Primary pneumonic plague arises from contact with patients with the septicemic type of the disease, or those with the bubonic type who develop secondary plague pneumonia. The pneumonic variety is either transmitted directly from man to man by droplet infection or indirectly by fomites. In either case there is no intervention of rodents and their fleas as vectors. Thus, like the disease at Beth-Shemesh, pneumonic plague is not associated with rodents or buboes, does not have very distinctive symptoms, and all patients affected die rapidly.

Cases of pneumonic plague usually occur as scattered cases or as groups of cases in the midst of larger epidemics of bubonic plague. At Beth-Shemesh, however, there appears to have been an epidemic of only the pneumonic type of plague. Search of the medical literature has revealed well-documented accounts of outbreaks of pure pneumonic plague which are strikingly similar in certain respects to the epidemic at Beth-Shemesh.

As described below, such outbreaks arose from bubonic plague in one locality after transient contact was effected between its inhabitants and those of a second locality.

In Phüoc-Hung, Siam (36), a villager returned from a neighboring town where there had been a number of bubonic plague deaths. Five hours after his return he became ill, and died promptly. Seventy-five deaths from pneumonic plague followed in the village, but no cases of the bubonic type were found. There had been no recent cases of plague in the village. Few rats were seen that year, and no epizootic had occurred among them.

In Iraq (34) a Bedouin returned to his encampment from a visit to nearby Baghdad where there had been sporadic cases of bubonc plague. Two days later he became ill and developed an axillary bubo. He died 7 days thereafter. At intervals, his father, mother, and sister died, but without developing buboes. Twelve out of the 40 people in this encampment died of pneumonic plague. A total of 90 cases, all of the pneumonic type, resulted from spread of the epidemic to other camps. No rats were seen, dead or alive, in the region.

At Munda, in India (37), a man returned from a village that was infected with bubonic plague. He became ill and died one day later. Within 12 days, 15 members of his family died of pneumonic plague. No rats were seen during the epidemic.

In Oakland, California, in 1919 (38), a man returned from a hunting expedition with the carcass of a squirrel. He became ill, showed signs of lobar consolidation, and developed an axillary bubo. He died two days later. In rapid succession, 12 primary and secondary contacts contracted pneumonic plague and died within a period of 2-5 days, save one patient who recovered. Some of the contacts were only fleeting. One secondary case lived in the same house as the first victim, but apparently did not even enter the sickroom.

In reconstructing the epidemology of the plague described in the Bible, it may be assumed, on the basis of the above parallels, that a member of the Philistine delegation might have become ill while in Beth-Shemesh. In view of the peaceful nature of the mission, the eastern code of hospitality would almost certainly have been applied, and the sick man brought into close contact with some of the Israelites. Other possible means of introducing the infection would include cases of "walking plague," or even healthy individuals, since it has been observed that the latter can occasionally carry pneumonic plague without themselves becoming ill (3).

The cart which carried the Ark, and the golden images might have acted as fomites. Finally, Gotschlich (39) has described two convalescents from secondary plague pneumonia, and one apparently from primary pneumonic plague, who carried virulent plague bacilli in their sputa for periods of 19-42 days after recovery. A member of the Philistine delegation which met with the elders of Beth-Shemesh and remained in contact until after the sacrifice of the cows might well have been such a carrier.

At the risk of over-literal reading of the biblical text, one might assume that one of the lords of the Philistines was a convalescent carrier of plague bacilli. According to the text, one or more of the five lords was stricken with the plague,[6] yet all five lords were members of the group which later returned the Ark and came into contact with the elders of Beth-Shemesh.[7]

In any one of these ways, the microorganisms causing bubonic plague among the Philistines could have been introduced among the Israelites at Beth-Shemesh, resulting in a short, sharp outbreak of pure pneumonic plague.

Summary and Conclusions

Evidence has been cited that the epidemic among the Israelites at Beth-Shemesh, described in I Samuel VI, was in all likelihood pneumonic plague. This evidence has been drawn from statements in the biblical text, from signficant omissions from the text, and from a number of well documented accounts of modern epidemics of pneumonic plague that closely parallel the episode described in the Bible. If the author's interpretation of this evidence is valid, the first record of an epidemic of pneumonic plague is to be found in the Bible.

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MALARIA AT WASHINGTON BARRACKS AND FORT MYER

Survey by Walter Reed

HUGH R. GILMORE, JR.

The possibilities of careful epidemiological investigations are well illustrated in a malaria survey made by Walter Reed in 1896 at Washington Barracks and Fort Myer. A copy of this report in the files of the Medical Museum of the Armed Forces Institute of Pathology furnished the material for this communication.

Washington Barracks, now known as Fort Lesley J. McNair, is located in Washington, D. C., at the southern end of Fourth Street, Southwest. It lies on a point of land formerly known as Turkey Buzzard or Greenleaf's Point, between the Anacostia River and the Washington Channel of the Potomac. In 1896, a tract of poorly drained land lay between the post and the Anacostia, and the James Creek Canal, which was an open sewer flushed by the tides, formed the eastern boundary of the post. What is now Haines Point, across the Washington Channel to the west, was then a newly made peninsula, reclaimed from the Potomac flats and covered with ". . . rank, vegetable growth." Fort Myer is on the Virginia side of the Potomac River, on a bluff overlooking the lowlands along the river.

Malaria parasites were first recognized in the blood of patients by Laveran in 1880, and the laboratory diagnosis of malaria by examination of the blood was just coming into use in 1896. Walter Reed's report included some data based on laboratory diagnosis, but the greater part of his statistics was based on the clinical diagnosis and gathered from hospital records. The survey was made without knowledge of the mosquito transmission of malaria, for Manson had only suggested this possibility in 1894, and it was not until 1897 that Ross demonstrated the development of malarial parasites in anopheline mosquitoes.

Walter Reed's report to the Surgeon General begins: "In compliance with the letter of instructions from your office dated 30 August 1895, I have the honor to submit the following report concerning the character and prevalence of malarial fevers at the posts of Washington Barracks, D. C., and Fort Myer, Va., during the fall of 1895, together with the result of an investigation into the probable local causations of these fevers."

In obvious recognition of the importance of annual leave, he continues: "The receipt of these instructions a few days only before my annual leave

Fig. 1

MAJOR WALTER REED ABOUT 1902

Courtesy Armed Forces Medical Library and Armed Forces Institute of Pathology.

of absence rendered it impossible for me to begin this investigation until the first week in October." That he was not immune to annoyance from administrative assignments is reflected in the statement, ". . . my duty as Recorder and member of the Army Medical Examining Board interfered very much with that thorough and systematic study of the blood of the patients affected with malarial disease which was so much to be desired."

He compares the incidence of malaria at the two posts beginning with the year 1871 and finds that it is relatively the same. To him this indicates a common cause, ". . . the same general sanitary conditions which control the presence of malarial fevers at Washington Barracks exert a like influence over the course of the disease at Fort Myer."

Reed also discusses two theories as to the source of the disease: one that it may be in the drinking water; the other that the infection may be airborne. The medical officers at Washington Barracks favored the airborne theory. Major George W. Adair in 1894 noted a much higher incidence of malaria among the enlisted men than among officers and their families. He attributed this "largely to the fact that the men are in the habit of frequenting a path along the James Creek Canal which leads to a hole in the boundary wall; here is a highway through an unsanitary marsh, never travelled by officers, and probably most frequently used by enlisted men between taps and reveille and at a time of day when the emanations from the soil are most dangerous." Again in 1896 Major Adair recommended the cutting of weeds along the northeast border of the reservation since ". . . this spot forms a breeding ground for malarial germs." A report made on malaria at Washington Barracks in 1896 by Major Charles Smart, Surgeon, U. S. Army, and Dr. William Mew of the Army Medical Museum also favored the airborne theory: "The presence of malarial exhalations in this locality accounts for the prevalence of the disease. . . . Fortunately the bank [of the James Creek Canal bounding the reservation on the east] is lined with a double row of poplars and willows forming a dense screen of foliage which has no doubt done much to intercept malarious exhalations."

Washington Barracks was supplied with water from the Potomac River as was most of Washington. In rejecting the water-borne theory, Walter Reed writes: "Those who live in the more elevated section of the city away from the river front, drink Potomac water with impunity, as far as malarial disease is concerned; while those who live on the low plateau bordering both the Potomac and the Anacostia Rivers are affected annually by malarial diseases to a greater or less extent. . . . To my mind, however, still stronger evidence, if needed, that the source of malarial fevers

Fig. 2

WASHINGTON ABOUT 1896

The arrow points to Washington Barracks. The Anacostia River is in the upper left and the Potomac River in the upper right. Haines Point lies between the Potomac and the Washington Channel.

-- Courtesy Washington Public Library and Armed Forces Institute of Pathology.

at Washington Barracks is not due in any sense to its water supply, is the marked effect observed upon the prevalence of this disease by the occurrence of one or two light frosts. While I can understand that such a reduction in temperature would quickly check the development of the parasite present in the air, or immediately upon the surface of the soil, I cannot conceive how such a slight reduction in temperature could possibly affect the immense volume of water contained in the Potomac River.

"I therefore conclude that the source of the malarial fevers at Washington Barracks can be referred to the development of the specific cause of malaria partly in the soil upon which the post is located and to a still greater degree to its development in the extensive marsh lands lying in and along the Potomac and Anacostia Rivers."

A special report on the water supply and fevers at Fort Myer made in 1893 by Major Smart and Dr. Mew noted that the incidence of fever at Washington Barracks was as high as at Fort Myer, but there was ". . . one notable difference in the character of these two posts, i. e., remittents exclusively prevailed at Fort Myer, intermittents at Washington Barracks; and this has a bearing on the probability of unwholesomeness of the water at the former post, for when malarial fevers are recognized as due to malarious waters the fever is generally of the remittent type.

"In view of these observations it is evident that an adequate supply of good water should be obtained for Fort Myer. Such a supply would probably put an end to its remittent fevers, and the elevation of the post would probably keep it free from the intermittents which infest such low grounds as those of Washington Barracks."

In those days, malaria was recognized as appearing in an intermittent form with a rise in temperature every 48 hours and a remittent form with a more constant fever. Today we know the intermittent form as tertian malaria and the remittent type was easily confused with typhoid fever and hence the association of the remittent type with "malarious waters."

In commenting on this report, Walter Reed states: "I am reluctant to disagree with the general conclusion of the report that malarial fevers at Fort Myer during the year 1892 were due to its unwholesome water supply. I think, however, that the occurrence, on the one hand, of a large excess of intermittent fever at Washington Barracks occasioned by emanations from the marshes (hence airborne) and the prevalence of remittent fever, on the other hand, at Fort Myer, brought about by the use of unwholesome water would be of very great import, *if true*; but I do not believe that this position can be sustained. Certainly if the almost exclusive prevalence of remittent fever during the year 1892 was occa-

sioned by an unwholesome water supply, the same water supply should produce remittent fever in excess over intermittents in 1893 and 1894. On the contrary I find that during these years when malarial diseases were largely increased, intermittent fevers prevailed almost exclusively at Fort Myer. Indeed a careful examination of the medical records of the post will show that only during Major White's incumbency as Post Surgeon, did remittent fever prevail to any great extent at this station. During all the other years intermittents largely predominate, as at Washington Barracks, and remittents only appear, few in number, during the later fall months.

"It is hardly necessary for me to remark that remittent or estivo-autumnal fevers appear in a malarious climate, chiefly during August or September, and this occurs irrespective of a good or bad water supply.

"Since with an unchanged water supply intermittent fevers prevailed almost exclusively during the years 1893 and 1894, the question arises, were not these occasioned by emanations from the Potomac flats rather than by the quality of the drinking water? Fortunately a change of water supply made in November 1894 enables a more correct answer to be given to this question than would otherwise have been possible, and to my mind, throws much light on the etiology of malarial disease at Fort Myer.

"During the year 1895 this post was supplied with Potomac River water, the old supply [from springs and wells] being entirely cut off. In addition beginning in January, 1895, the enlisted men drank water which had been filtered through Pasteur filters, as a greater precaution against malarial and typhoidal infection; officers and their families drank water filtered through Columbia filters, and which was afterwards boiled."

In spite of these precautions malaria was more prevalent at Fort Myer in 1896 than in the preceding 23 years! Washington Barracks, where unboiled, unfiltered Potomac river water was used, showed a similar high incidence of malaria. Walter Reed continues, "This occurrence of a higher admission rate for malarial diseases, with a new water suuply, raises a grave doubt, naturally, whether the old water was the channel through which malarial infection reached the garrison of Fort Myer." And he concludes that the source of the infection does not lie in the water supply but that malarial fevers at both Washington Barracks and Fort Myer have a common origin and that the ". . . source of infection . . . can be found in the marshlands of the Potomac."

Thus on epidemiological evidence Walter Reed eliminated drinking water as a source of malaria, and correctly implicated airborne "emanations"—but the "emanations" had wings!

THE WILLIAM OSLER MEDAL ESSAY

A STUDY OF IBN NAFIS *

E. EDWARD BITTAR

PART I: SOME NOTES ON ARAB MEDICINE

> It is fitting then for us not to be ashamed to acknowledge truth and to assimilate it from former generations and foreign peoples. For him who seeks the truth there is nothing of higher value than truth itself; it never cheapens or abases him who searches for it, but ennobles and honours him.
>
> Al-Kindi.

To an American, the mention of an Arab brings to mind a picture of the vast desert, the silent, turbanned camel rider, the voice of the Muezzin calling the faithful to prayers, the tales from *The Thousand and One Nights*. It is difficult even for those who have travelled in the Middle East to realize, judging by the present conditions prevailing in those countries, that these people were once part of that vast Arab Empire which spread over half of the Old World and created a civilization and culture which must be judged as something extraordinary and unique in the history of mankind.

The Arabs as a people had existed for thousands of years, but their history as one united nation begins with the Prophet. Mohammed, who was born in Mecca, was convinced, after a long internal conflict, of his divine mission and came forth with his religious doctrine—the worship of one God. He made his people repudiate idolatry and showed them the new way. Though the difficulties in his path were many and the dangers grave, he did not falter in his preaching, and in the end the whole of Arabia gave up idols for the one God. Within his short life-time Mohammed accomplished what no other man before or after had done. Out of rough and crude tribes, held together largely by family loyalties, he created a nation, and established a religion which within a generation took

* This essay is based in part on a thesis presented to Yale University for the M. D. degree. The thesis, including a copy of the MS. of the 'Epistle on the Perfect Man,' is available in the Yale Medical Library.

into its fold no less than two hundred and forty-six million people of all races and climes. He also laid the basis of an empire "which within a century after the rise of Islam became greater than Rome at its zenith," ** [1] extending from the Indus to the Atlantic. The Arabs of the Arabian Peninsula, instructed by the Koran that the message of Islam was not for Arabia alone but universal and meant for all people, rushed forth in their religious enthusiasm and became conquerors of vast territories. Wherever they went, they carried the preaching of Islam with them, not at the point of the sword as many prejudiced books teach the Christian world, but by persuasion, according to the Koran. "Summon them to the way of thy Lord with wisdom, kindly warning, dispute with them in the kindest way and let there be no compulsion in religion." [2] Indeed, the success of the Muslims in the conquered countries lay in the tolerance they extended to all non-Muslims.

But it was not only a religion and an empire which the Arabs built but a highly refined civilization, "for in the period of their expansion, they assimilated to their creed, speech and even physical type, more aliens than any stock before or since" [3] and out of this amalgamation arose under the banner of Islam the great Arab culture which contributed so much to modern European civilization. For many centuries in the Middle Ages, Arabic was the language of learning, and all works on philosophy, medicine, religion, astronomy, etc., were written in Arabic. In those ages, when in Europe but a few knew how to read and write, in Spain, which had been conquered by the Arabs, there were hardly any illiterates. The few great scholars of Europe travelled to Spain in order to study the beautiful literature, science and philosophy at the Muslim institutions of learning. "Never again shall the world see so marvellous a sight as the Arabs afforded during the ninth century. These pastoral people whose religious enthusiasm had suddenly made them masters of half the civilised world, immediately set to work to study science. During this time Germanic hordes prided themselves upon their brutal ignorance, and it took them several centuries to link a chain of tradition, while the Arabs accomplished it in one century." [4]

But all good things come to an end and so did the great Arab empire.

** Complete citations for all references will be found in the Bibliography at the end of the article.

[1] Hitti, P. *The history of the Arabs*, p. 4.
[2] Arnold, T. *Preaching of Islam*, p. 3.
[3] Hogarth, D. *The penetration of Arabia*, p. 7.
[4] Cumston, C. *The history of medicine*, p. 187.

In the thirteenth century the first blow fell when the Mongol hordes swarmed down from the steppes of Asia upon the already internally weakened Arab states and razed them to the ground. Who has not heard of Tamerlane that 'great butcher' who started the dissolution of the Arab Empire, which was completed by the Turks in the fifteenth century. The ruthless military despotism of Turkey saw to it that the Arabs never got the chance to rise again, and so the population, burdened by pitiless taxation, became poorer and poorer; the once flowering lands steadily became barren and in the course of centuries of terrible neglect and oppression everything that was noble and enlightening was lost and forgotten. It is only since the end of the First World War that the Arab countries have been aroused from their long sleep and are now fast on the way to claim their own, even though they have to reconstruct their culture almost completely.

There is more than mere prejudice in the fact that the Arabs have received so little consideration and study in modern times. Some historians have even gone so far as to deny them all merit. It has been said of the Arabs that they are opposed to knowledge and enlightenment, but indeed nothing could be further from the truth. The Prophet himself is known to have urged his followers to go in quest of knowledge and this among his sayings is ample proof of it:

> Seek ye knowledge from the cradle to the grave.
> He who desires knowledge adores God.
> The quest of knowledge is the duty of every Muslim: male and female.
> Science lights the road to Paradise.
> The ink of a scholar is more holy than the blood of a martyr.

The zeal of the Arabs in pursuing these precepts, among other things, made it possible for them to acquire the knowledge and wisdom of ancient Greece, India, and Persia wherever they could find it. Their unparalleled success was also in large measure due to the patronage of the caliphs and princes, who extended their courtesy and generosity to all scholars, translators of ancient classics, and poets and philosophers, irrespective of race and religion. As all sciences were so generously encouraged, small wonder that these people of different races and creeds, feeling that they were real members of this great empire, became infected with the same enthusiasm. Thus worthy writings in the field of medicine, philosophy, mathematics, astronomy, music, and art became available to every person in the empire. It is known that every large city had a rich public library, and almost

every person of means prided himself on also having his own private library. Thus, " the resilient Arab mind, the universalism of Islam and the open-minded attitude toward new truth as a creation of God " [5] led to the evolution of what we shall term here a ' creative *Weltanschauung* ' which was enduringly the core of the varied endeavours in learning, its appearance being the result of the *tour de force* of the Prophet's mission. It follows therefore that the Islamic tradition in learning is not to be mistaken for the Greek, even though scores of writers, including some orientalists past and present, would have us do so. The Greek tradition was indubitably one of scholarship and speculative thought. The Greeks were highly articulate; they thought clearly, explained things and taught well. But it was the freedom of thought and toleration of ideas in the early part of Muslim history that contributed to the success and growth of Islamic tradition for some five centuries. And whilst " Muslim theology, philosophy and science put forth their first luxuriant shoots on a soil which was saturated with Hellenistic culture," [6] the essential character of Islam remained intact.

It came about that medicine, which was the first science to be developed by the Arabs and which started out as a graft from Greek medicine, gradually turned away in an effort to realign herself and be consistent with the ' creative *Weltanschauung*.' This makes us look at Arab medicine from a new standpoint. As a graft from the Greek medical literature, its planting was mediated by the Nestorians who founded the famous school of Jundi-Shapur in Persia. Fleeing from increasing persecution by Emperor Justinian, these Nestorians found asylum under the aegis of King Khosroes I who, admiring Greek culture, was glad to set up an academy comparable to the one at Alexandria. O'Leary [7] describes the Nestorian milieu very well, but we must go to Al-Qifti's much earlier account to discover that these people of Jundi-Shapur were proud and somewhat superior and believed " that only they were worthy of this science and would not suffer it to go forth from themselves, their children and their King." [8]

The *locus classicus* of this attitude toward knowledge appears in the letters of the ' Erasmus of the Muslim Renaissance,' Hunain Ibn Ishaq,[9]

[5] Kurani, H. *The interaction of Islamic and Western thought in retrospect and prospect*, p. 3.

[6] Nicholson, R. *Mystics of Islam*, p. 9.

[7] O'Leary, D. L. *How Greek science passed to the Arabs*, p. 68.

[8] Qifti, *History of the physicians*, p. 174.

[9] Bergsträsser, G. *Risalat Hunain Ibn Ishaq*. 49 pp. Also: Meyerhof, M. *Isis*, 1926. pp. 687-724.

who studied under the famous Masawayh. The translations of this Erasmus with those of members of his school at the Academy of Wisdom in Baghdad can be measured, writes Sarton, " as the foundation of that Muslim canon of knowledge, which dominated medical thought almost up to modern times." [10]

As already mentioned, medicine was the first science to be developed by the Arabs. This was not a little due to the Prophet himself, who said that knowledge is of two kinds: that of religion and that of the body, and thus scholars made every effort to collect this knowledge from whatever source they could. All available manuscripts of the Greek classics in medicine, as well as Indian and Persian, were soon translated into Arabic, but such great figures as Avicenna were not satisfied with what they found in Hippocrates and Galen. Both were very often obscure and badly classified, and Galen was unnecessarily verbose. So Avicenna set himself to his momentous task of arranging, illuminating, systematizing, and classifying all medical work available in his time, and out of this laborious work emerged his famous Canon which, because of its great lucidity and excellent and logical classification, became the textbook and the medical bible not only in the Arab Empire, but also in the European universities up to the seventeenth century. Indeed, the chief contribution of Arabic medicine was in classifying and systematizing all medical knowledge, divesting ancient medicine of all that had not been borne out by actual practice.

Another Arabic contribution to internal medicine lay in their original and precise description of many of the acute diseases such as measles and smallpox by Al-Razi, meningitis and pleurisy by Avicenna. Moreover, clinical medicine also owes much to the efforts of the Arabs, and here the name of Ibn Zuhr, who depended entirely on careful observation and the recording of clinical data, should be mentioned. Hospitalization is another contribution. While the Arabs were not the first to build hospitals, they certainly were the first to perfect them, and they were the first to have special hospitals for the lepers, for the insane, for the army, and for the general public. First-aid stations and mobile clinics were also originated by them, as well as out-patient departments and pharmacies attached to hospitals. The Arabs were the first to examine and license physicians and the first to have regular inspection over the administration and finances of hospitals. Indeed, theirs were excellent hospitals, where patients were looked after by an efficient and trained staff and were accorded every

[10] Sarton, G. *Introduction to the history of science*, I, p. 610.

humane care.[11] Hospitals in Europe at this time were not worthy of the name, for they were nothing short of breeding-holes of the most terrible diseases. This was true even of the Hôtel Dieu of Paris.[12]

Meyerhof clearly realized that the Muslims began " to rely upon their own resources and to develop from within " [13] soon after the period of the translation of Greek medical literature. His discerning eye measured also the short span of internal scientific growth, for as Islamic orthodoxy and doctrinaire teaching stultified the ' creative *Weltanschauung* ' by 1111 A. D., marking the time after the great Al-Ghazali, the sciences in general were disparaged. The theological polemic which the orthodox thinkers used was that " science led to loss of belief in the origin of the world and in the Creator." [14] Compare this with the appeal of Averroes to reason, " He who does dissection increases his faith in Allah," [15] and add the philosophical appeal appearing in the beautiful poetry of Abou Al-Ala ' who declared: " I am really unable to understand how the physician can deny the existence of God after he had learned anatomy." Is this utterance significantly different from the teleologic arguments gathered by Sherrington [16] from neurophysiology?

These utterances of theologian, physician, philosopher, and poet struck an implicit note of appeal to Islam and although unheeded by the fanatics and philistines, they were boldly envisioned by Al-Baghdadi and by the greatest physiologist of the Middle Ages, Ibn Nafis, so long ignored and forgotten by the scientific world. Both are known to have initiated an anti-Galenic trend, which to them heralded the supremacy of " our knowledge based on observation, sensible investigation and commonsense; and we do this regardless of the fact whether it agrees with the teachings of our predecessors." This means among other things that " the legacy of Islam in medicine and natural sciences " is, contrary to Meyerhof, more than " the legacy of Greece increased by many additions most practical." [17] Another thing it points out is the empiricism of Ibn Nafis, who by virtue of keen observation and logical reasoning found it possible to describe correctly the lesser circulation of blood. Surely, then, we cannot concur in Meyerhof's conclusion that the discovery was based entirely on " pure

[11] *Cf.* Usaybia, *Sources of information on the classes of physicians*, vols. I and II.
[12] Haggard, H. *Devils, drugs and doctors*, p. 33.
[13] Arnold, T. and Guillaume, A. *Legacy of Islam*, p. 322.
[14] *Ibid.*, p. 337.
[15] Usaybia, I. *Op. cit.*, II, p. 77.
[16] Sherrington, C. *Man on his nature.*
[17] Arnold, T. and Guillaume, A. *Op. cit.*, p. 344.

scientific speculation," [18] both because of Ibn Nafis' own admission and because he possessed a mind bordering closely on the Baconian, which inevitably led to "*Experimenta et ratio auctorum loco mihi suffragantum.*" It is known that Ibn Nafis was denied experimental verification of his observations because of the Islamic faith which explicitly prohibits the practice of dissection. He tells us this himself: "Our religious sense as well as the sense of mercy, have prevented us from carrying out dissection personally." This does not, however, preclude the possibility of his having dissected and experimented in secrecy, just as Ibn Masawayh had dissected monkeys.[19] Further, Ibn Nafis strongly urged "the study of comparative anatomy for a thorough understanding of human anatomy," [20] and in his "Epistle on the Perfect Man" he made his hero study and undertake anatomy and dissection before anything else. Is there any better proof that the Arabs were not merely transmitters than this remarkable discovery of Ibn Nafis? He did not turn to Greece, however glorious her past, for clues to this discovery of the lesser circulation, but found it in his own empiricism which categorically refuted the theory of both Galen and Avicenna.

There is tremendous need to re-evaluate Arabic medicine. But there is still greater need to study the scores of manuscripts (roughly 1% of what had been written in Arabic medicine remains available today) which lie buried in different libraries throughout the world. Not until painstaking and intelligent investigations are carried out will it be possible to judge and appraise the real value of Arabic contributions to medicine.

The outcome of the research on Ibn Nafis affords some answer to the question which Browne put to his students as to whether or not "the Arabs did more than transmit the medical wisdom of the Greeks." [21] Browne set certain standards for research in the vast field of Arabic studies which even Meyerhof did not attain. Yet Meyerhof as a practising ophthalmologist in Egypt did research meriting our lasting admiration. His brilliant work on Ibn Nafis which appeared originally in German [22] evinces the erudition and scholarship associated with so many of

[18] Meyerhof, M. *Isis*, 1935, p. 120.
[19] Usaybia, *op. cit.*, I, p. 178.
[20] Khairallah, A. *Outlines of Arabic contributions to medicine*, p. 137.
[21] Browne, E. *Arabian medicine*, p. 112.
[22] Meyerhof, M. *Mitteilung zur Geschichte der Medizin und der Naturwissenschaften*, 1931, pp. 55-57. Also: *Quellen und Studien zur Geschichte der Naturwissenschaften und der Medizin*, 1935, vol. 4, pp. 37-88 (fascicle 1 carrying the article appeared in 1933).

his other works. But he was not alone this time in such research; Haddad and Khairallah pursued a similar study of Ibn Nafis.[23]

However, it was Tatawi who discovered Ibn Nafis' celebrated description of the lesser circulation while examining several manuscripts in Berlin. He rendered it from Arabic into German (in five copies only) as a dissertation at Freiburg University.[24] His work marked the realization of Ibn Nafis' own expectation that "if he did not know that his writings would live after him for ten thousand years he would not have taken the trouble to compile them."[25]

Part II: Ibn Nafis: His Environment, Life, and Works

> He who has restored life to a man shall be accounted as if he had restored life to humanity.
>
> (The Koran)

1.

The name of Usaybia as biographer of physicians stands out prominently in Arabic medical history, for this careful and informative writer gave us valuable records on some four hundred physicians, as well as on the history of Greek medicine. Usaybia was born in Damascus in 1203 A. D. of a family of physicians. He himself studied under the great Ad-Dakhwar at the Nuri Hospital and then left for Cairo where he practised medicine and ophthalmology for some time. The greater part of his professional life, however, he spent in the service of the Amir of Salkhad in Houran where he wrote his *Sources of information on the classes of physicians*. When this work was completed, he presented a special copy to the vizier Amir Al-Dawlah in Damascus in 1245 A. D. But it was not until 1882 A. D. that the scholar Müller saw to its printing in two volumes in Cairo. Müller's collection of the Usaybia writings is now known to be incomplete, for Dr. Joseph Ish, in the course of preparing the catalogue of historical manuscripts in the Zahiriya Library in Damascus, recorded an entry in Arabic, the gist of which follows:

> This manuscript, which has no title, when compared to Usaybia's Uyun Al-Anba' (Müller's edition) proves to be a replica except for the section on Damascene physicians in which there are only six biographies. Five appear to be abridged, the

[23] Haddad, S. and Khairallah, A. *Annals of Surgery*, 1936, pp. 1-8.

[24] Tatawi, M. Der Lungenkreislauf nach Al-Korachie. Inaugural dissertation, 1924. 15 pp.

[25] *Cf.* Safadi, S. *Al-Wafi bil Wafayat.*

sixth is the life of Ala' Al-Din Ibn Abi Al-Hazm Al-Qarashie, known as Ibn-An-Nafis, which was not included in Müller's printed edition.

The manuscript is in a Persian type of handwriting and was transcribed about the 11th century A. H.[26]

There has always been speculation as to why Usaybia did not mention his contemporary Ibn Nafis. It has been suggested that professional jealousy existed between the two physicians, but according to this copy of the manuscript (to which I have found no earlier reference) it would appear instead that Usaybia had great respect and admiration for Ibn Nafis (see page 362 f. for literal rendering of his account).

It becomes clear, also, why Meyerhof and Khairallah, who had no knowledge of this biographical source, had to explain on the basis of the Müller edition [27] what was thought to be Usaybia's lapse in respect to Ibn Nafis. Yet in view of our knowledge that both physicians were natives of Damascus and students of Ad-Dakhwar and had moved to Cairo where they were attached to the Nasiri hospital, the explanations offered by Meyerhof and Khairallah have not seemed plausible.

The shortness of the biography Usaybia gives us can perhaps be explained by the fact that Usaybia died some eighteen years earlier than Ibn Nafis. By 1245 A. D. Usaybia had completed his *Sources of information* which would mean that Ibn Nafis at this time was only thirty-five years old. There is no way of telling where Ibn Nafis was at this time, but since Usaybia regards him as a Damascus rather than a Cairo physician, and makes no reference to the Cairo hospital, it seems likely that Ibn Nafis was still in Damascus in 1245 A. D.

2.

Usaybia and Ibn Nafis lived in a century of political strife and chaos in the Muslim world—dynastic rivalries, the wars of the Crusaders, and the devastating invasions of the Mongols. Yet, despite this turmoil, the academic activities in Damascus and Cairo were not seriously affected. This is particularly true in medicine, since there is ample evidence of the continued functioning of both the medical schools and hospitals. Leclerc observes that this particular period was a remarkably flourishing one for medicine in general. Unquestionably, the impetus for the sustained activity

[26] Ish, J. *Catalogue of the Ẓahiriya National Library, Damascus* (1947), p. 306. The manuscript appears under number 4883/I, General.

[27] Meyerhof, M. *Isis*, 1935, p. 104. Also: Khairallah, A. and Haddad, S. *Annals of Surgery*, p. 8, and Khairallah, A. *Outlines*, p. 55.

in the sciences came mainly from the three outstanding statesmen: Nouri Al-Din Zenki, the great Saladin, and Al-Mansour Qalawun, who, like so many Muslim rulers before them, were patrons of learning and did much for the promotion of medical knowledge. Each of them built a hospital and a school, where the standards of traditional teaching were maintained and Avicenna in particular was taught.

Meyerhof described in some detail the important political developments which he thought were responsible for the sponsoring of medicine by the rulers and the events surrounding the founding of the hospitals.[28] Nur-Ad-Din, who entered Damascus victoriously, built the Nuri hospital with funds received from the ransom of a Frankish monarch,[29] while the great Saladin, who admired the medical profession, built the Nasiri Hospital in Cairo in spite of being occupied with fighting the Crusaders. But it remained to Qalawun to build the magnificent Mansoury Hospital, also in Cairo, in fulfillment of a vow he made while a patient in the Nuri Hospital suffering from colic.

In his writings of the history of Cairo in this period, Siyuti recorded the details of the dedication ceremony at which al-Busairi stood before King Qalawun and recited: "You have built a school and a hospital, the former to rectify the faith the latter, the body." [30] This again reminds us of the famous 'tradition' attributed to Mohammed, namely, science is twofold: theology and medicine.

Maqrisi, who also wrote about the ceremony, mentions how Qalawun ordered the inscription of the following words on a tablet:

> I dedicate this hospital for the benefit of the King and the Mamluks (governed), the soldier and the prince, the great and the small, the freeman and the slave, for men and for women.[31]

Both schools, Nuri and Mansoury, attracted famous physicians who had learned medicine under the Christian physician Ibn al-Talmiz in Baghdad (d. 1164 A. D.).[32] The most outstanding of these physicians were al-Rahabie and Ibn al-Mitran, who taught at the Nuri school. One of their students was Ad-Dakhwar, who was destined to become the greatest of teachers. This matrix of teachers and teaching was dwelt upon by Usaybia in some twenty biographies, one of which was the noted

[28] Meyerhof, M. *Quellen und Studien*, 1935, pp. 41-2.
[29] Khairallah, A. *Outlines*, p. 69.
[30] Siyuti, J. *Husn al-Muhadara*, II, p. 143.
[31] Issa, A. *History of the hospitals in Islam* [in Arabic], p. 86.
[32] Meyerhof, M. *Quellen und Studien*, 1935, p. 42. Also: *Isis*, p. 103.

biography of Ad-Dakhwar himself, whom Ibn Usaybia mentioned so often as "witness and informant." [33] Under Ad-Dakhwar, the Nuri school became very famous, and there gathered around this dean a wide circle of students and physicians, among them Ibn Nafis.

3.

It is really unfortunate that scholars working on Ibn Nafis have not yet succeeded in discovering much information about his life, and thus we have to be satisfied with the scanty data available in the several short biographies handed down to us,[34] among which the biographical sketches of Umari [35] and Safadi [36] are the most notable sources. These two writers were students of the theologian Imam Al-Andalusi [37] and they wrote somewhat identical accounts of Ibn Nafis. Meyerhof observes that Safadi's account lacks two passages which appear in the sketch of Umari.[38] It is interesting that Umari says that Usaybia stands surety for the information he gave us on Ibn Nafis, for Ibn Usaybia, as mentioned before, had recorded a biographical sketch of the life of his contemporary.[39] The following is a literal rendering of the Usaybia account:

Ala' Ali Al-Hazm Al-Qarashie, the physician, comes from Al-Qarash which is a village in the vicinity of Damascus. He is a learned master "Sheikh," like a vast ocean and high mountain in his knowledge of the sciences. But he is not specialized in any of the sciences. However, had he written no more than the Commentary on the Canon dealing with the ambiguities of the Canon, there would still be sufficient proof of his great learning and the scarcity of men like him.

How much stronger, then, is the case for him when one takes into account that he had written many works in all the sciences which are accepted as authoritative by learned men in most countries. These works contain facts of observation and

[33] Usaybia, *op. cit.*, II, pp. 239-46.

[34] Meyerhof, M. *Quellen und Studien*, 1935, p. 50.

[35] Umari, S. Born in Damascus in 1301 A. D.; died in the same city of plague in 1348 A. D. He was an ecclesiastical judge who belonged to the Shafi'ite school of law and became Secretary of State in Cairo. He is the author of a prodigious encyclopaedia in 27 volumes entitled *Masalik Al-Absar fi Akhbar Maleek Al-Amsar* (Retrospects on news of kings and countries).

[36] Safadi, S. (1296-1363 A. D.) A Syrian scholar who is principally known as an encyclopaedist and who is the author of the famous Wafi, manuscripts of which are available in Oxford and the British Museum. (*Vide* Brockelmann, Bd. II, p. 32).

[37] Andalusi, A. Born in Granada, Spain, in 1256 A. D. and died in Cairo in 1345. He was a noted scholar in the fields of theology and law, became a leader in the Shafi'ite school. He was one of Ibn Nafis' students in logic and had both Umari and Safadi for students when he taught in Cairo. Subki wrote a long biography of him.

[38] Meyerhof, M. *Quellen und Studien*, 1935, p. 53.

[39] Usaybia, Uyun Al-Anba. Ms. No. 4883/1 in the Zahiriya National Library in Damascus.

accurate views, shrewd annotations and novel expressions. Especially do I refer to his Compendium and the " All-Embracing " in which he stated the differences in the methods of the various groups of scientists and pointed out the protean views of the physicians in the different branches of the sciences as well as in medicine. He brought to light in every matter the gist and essence of their arguments and proofs in satisfying detail and persuasive eloquence.

He has many works and great compilations of which some are the " Commentary on the Aphorisms of Hippocrates "; the " Fruits of the Questions "; the " Botany of Simple Medicines "; the " Triple Born "; the " Container of the Exactitudes of Medicine "; the " Al-Shafi "; and a " Dissertation on the Diseases of Children."

Since the Safadi manuscript is in better handwriting, Meyerhof chose to use the copy in the British Museum.[40] This manuscript was compared with the account which Ul-Baqir gives in his *Rawdat Al-Jannat*[41] and was found to be identical, for Baqir mentioned Safadi as his source.

Ibn Nafis was born in Damascus in 1210 A.D. His ancestors are said to have come from the village of Qars (beyond the river).[42] He is described by Safadi as a tall, thin, smooth-cheeked and chivalrous man, a pious Shafi'ite, and, like his master Ad-Dakhwar, a bachelor. After having finished his studies under Dakhwar at the Nuri school in Damascus, he left for Cairo, but unfortunately neither the reason for his departure nor the date is known to us. In Cairo he became attached to the Mansoury Medical School, and Ad-Dahabi tells us he was head physician (Rais), but does not mention during what period. He was said to have been a great teacher and doctor, who was " day and night " at the disposal of all who needed his help. To his beautiful house, which, it is reported, was entirely tiled with marble stone and was the only one in the whole of Cairo to have a marble hall, came many notables, including princes, in order to join in the interesting debates on many subjects. Among those who visited Ibn Nafis frequently were the leading physicians in Cairo, Ibn Saghir, Al-Badr Hassan, Ibn Kushak, and the Secretary of State, Ibn Al-Kuff.

According to Safadi, Ibn Nafis was unequalled both in the capacity of his memory and in his voluminous creative writings. Those who watched him write all agreed that he did not use any reference books, since he

[40] Safadi, S. Al-Wafi bil-Wafayat Ms. in British Museum. Or. 6587, fols. 204-214.

[41] Baqir, M. *Rawdat Al-Jannat*, p. 472. Photostat of this account was obtained through the kindness of Père G. Anawati, Director of the Oriental Dominican Institute in Abbasieh, Egypt.

[42] Zirikli, K. *The famous men*, II, p. 663. See also *Catalogue of manuscripts of St. Joseph's University*, Beirut, II, p. 313, under " Moojez Al-Qanun," and Shehadeh, A. K. *Voice of Syria*, 19th August, 1954.

knew things so well by heart. Sheikh Al Rashidi, the spokesman of Prince Hussein Mosque, described Ibn Nafis in the midst of a writing session in this manner: "He used to turn his face to the wall and to write as fluently as a waterfall, and when the quill in his hand got blunt, he discarded it and took a fresh one from a collection made ready and placed before him. In this way he lost no time."

He was acclaimed as the second Avicenna by many notable physicians, and several events confirming his fame have been recorded. However, not all were full of praise of him. Al-Halabi for instance, who was a philologist, described a meeting with Ibn Nafis, in the course of which he complained of stiffness in the hand and asked him for a remedy. To his disappointment Ibn Nafis replied that he too had a similar affection but did not know how to treat it.

Al-Ya'muri, who was one of his students, recounted that Ibn Nafis was criticized by some for being lacking in the art of treatment because he preferred to avoid prescribing medicaments where dietary regimens were indicated. He ordered simple drugs instead of complex compounds; diets instead of medicines. Thus, says Ya'muri, Ibn Nafis prescribed corn meal for a patient suffering from ulcers and carobs with chick-peas for those with diarrhea. This way of treating patients provoked his druggist, who one day remarked: "If you intend to continue issuing such prescriptions, you would then be better off at the butcher's, but if you want me to be your druggist, then prescribe, I pray you, the drugs I have." (*Vide* Umari's biographical account.)

Judging Ibn Nafis' manner of treating patients suffering from ulcers and intestinal troubles from our modern point of view, we can but say that in the regulation of diets he was certainly very much in advance of his time.

Ibn Nafis wrote a treatise on the pulse which appears not to have been preserved but may prove to be of special interest because of the possibility that his comments on physio-anatomy existing in a Latin translation by the early 16th century physician Andrea Alpago [42a] of Belluno may have been drawn from it. Although Alpago fails to mention which of Ibn Nafis' writings he had used, there is every reason to believe that Alpago was familiar with Ibn Nafis' theory of the lesser circulation. Professor Charles D. O'Malley, the Renaissance scholar at Stanford University, holds the view that Alpago may have been responsible for the

[42a] See Mazzuchelli and Wüstenfeld (*Die Uebersetzungen arabischer Werke*).

communication of Ibn Nafis' theory to the West. Since Alpago was connected with Padua University, it is plausible that the Italian school of anatomists, as well as Michael Servetus, borrowed Ibn Nafis' theory from one of those Latin translations left in the custody of Andrea's nephew Paulus Alpago after his death in 1521.

Safadi tells the story of how the treatise on the pulse was written. One day Ibn Nafis had gone to the public bath and while in the midst of washing himself, he suddenly walked out into the dressing room and asked for pen and paper. Then and there he started writing his treatise on the pulse and did not return to the bath room until it was completed.

Ibn Nafis continued writing voluminously during his entire life. Meyerhof gives us a list of his writings, the availability of which he had established, but this list has proven incomplete. The cataloguing of the numerous manuscripts, not to mention those lying in private libraries, is a task far from being finished. Subsequently the list of Ibn Nafis' works has grown and the following is a tentative account:

1. *Kitab Al-Shamil* (The All-Embracing [Book of Medicine]).[42b]
2. *Kitab Al-Mukhtar Min Al Agdiya* (The Selection of Nutrition).
3. *Introduction to the Medicine of Hippocrates.*
   Since there are no allusions to this work beside Khalifa's, it is conceivable Khalifa had in mind the following commentaries which are extant:
   (i) *Sharh Fusul Abuqrat* (Commentary on Hippocratic Aphorisms).
   (ii) *Sharh Taqdimat Al-Ma'rifa* (Commentary on Hippocratic Prognostics).
   (iii) *Ibidimiya li Buqrat Watafsiruhu l'Amarad Al-Wafideh* (Commentary on the Epidemiology of Hippocrates).
4. There is another manuscript, Meyerhof points out, in the Munich Library entitled "Explanations in the Aetiology of Diseases," which may have beeen written by Ibn Nafis, but this has not been authenticated.[43] Brockelmann makes no mention of it.
5. *Commentary on Hippocrates' De Natura Hominis.*
6. *Commentary on Galen's Anatomy* (starting with Bk. VIII).
7. (i) *Kitab Al-Muhazzab f'il Kuhl* (The well-arranged book in Ophthalmology).

[42b] Information about these works will be included in my thesis.
[43] Meyerhof, M. *Quellen und Studien*, 1935, p. 65.

(ii) There is a manuscript in Obeid library, Damascus, in which Ibn Nafis presents an introduction on the differentiation of the eyes of different animals and ultimately compares them with the human eye. This manuscript has till now not been referred to by any researcher.

8. *Sharh Masa'il Hunain* (Commentary on the Questions of Hunain Ibn Ishaq).
9. *Sharh Al-Hidaya fi-it-Tibb* (Commentary on Avicenna's Guide in Medicine).
10. *Sharh Mufradat Al-Qanun* (Commentary on the Simple Medicines in the Canon).
11. Usaybia mentions several works, all of them medical, a good many of which were not referred to by other biographers including Umari and Safadi. This seems a little strange, particularly on the part of Umari who must have depended on Usaybia's account for some of his information. It could well be that Umari had made use of another manuscript also by Usaybia which may have been longer and more detailed.
    (i) *Kitab Jame' Al-Daka'ik fil Tibb* (The Container of the Exactitudes of Medicine).
    (ii) *Kitab Al-Shafi* (The Healer).
    (iii) *Kitab Mawalid Al-Thalasah* (The Triple Born).
    (iv) *Risalah fi Awia' Al-Atfaal* (Dissertation on the Diseases of Children).
12. *A medical work without a title.*
    (i) Brockelmann states this manuscript is available in the Princeton library.[44]
    (ii) There are also "three sections of a manuscript of Ibn Nafis (about three hundred leaves), which Hitti declared to be the autograph copy."[45] This manuscript is in the Lane Library at Stanford University. Perhaps this is the same as (i).
13. *Kitab Mujiz Al-Qanun* (The Compendium of the Canon).
14. *Sharh Al-Qanun* (Commentary on the Canon).
15. *Sharh Tashrih Al-Qanun* (Commentary on the Anatomy of the Canon). Brockelmann lists the existence of four manuscripts,[46]

[44] Brockelmann, C. *Op. cit.*, Supplementband I, p. 900.
[45] Bainton, R. *Hunted heretic*, p. 254.
[46] Brockelmann, C. *Op. cit.*, Bd. I, p. 457.

but there are in reality far more, for Meyerhof himself obtained two manuscripts from Persia.[47] Shehadeh, a Damascus physician who did his thesis at the Sorbonne on Ibn Nafis in 1951, gives a long list of libraries, but has no proof that each of them has the manuscript which deals with the anatomy of the Canon per se. Very likely, he listed these libraries on the wrong assumption that the Commentary on the Canon included the sections on anatomy as well.

This particular commentary is an enormous work, in which Ibn Nafis covered in toto books I and III of the Canon. What he actually did was to extract the anatomical descriptions and discussions and for the first time in Arabic medical literature, unlike Avicenna, made anatomy an independent and systematic study.

This commentary contains the description of the lesser circulation. The manuscripts in Berlin, Paris, and Damascus, together with those owned by Haddad and the late Meyerhof, are unquestionably known to have this description. As to the Bodleian manuscript, this is incomplete, since the anatomical description goes as far as the pharynx only,[48] and the Escurial manuscript has not been studied, so far as can be gathered, although Shehadeh, while at Paris University, made an attempt to procure photostats but without success.[49]

Ibn Nafis did not limit his writings to medicine. He is known to have written on theology, philosophy, jurisprudence, grammar, and language. His most outstanding work is considered to be his " Perfect Epistle concerning the life story of the Prophet," better known as the " Epistle on the Perfect Man." This Epistle was meant to be a reply to Avicenna's Hayy Ibn Yaqzan and in it Ibn Nafis defends Islam and the tenets expressed " in ethics and divine laws, the prophecies, physical resurrection and the decay of the world." Meyerhof calls this book a " philosophical romance "; indeed it is an allegory which inescapably shows the profound influence Ibn Tufail, the Andalusian theosophist and physician, wrought on Ibn Nafis. (*Vide* Ibn Tufail's Hayy Ibn Yaqzan.)[49a]

[47] Meyerhof, M. *Isis*, p. 102.

[48] Confirmed by a communication from Keeper of Oriental Books at the Bodleian library.

[49] See *Voice of Syria.*

[49a] The complete rendering of the *Epistle* is included in my thesis.

The above short survey of the works of Ibn Nafis cannot be termed exhaustive, as Brockelmann, Sarton, and others have relied largely on published catalogues of the famous libraries in the world, while there are scores of small libraries belonging to convents, mosques, and other religious institutions which have never published their catalogues. Therefore, further energetic research will undoubtedly prove successful in recovering many of his works which have not yet been traced.

(To Be Concluded)

NOTES AND COMMENTS

STUDENT MEDICAL CLINIC OF DR. WILLIAM OSLER

Edited by DOUGLAS CARROLL *

In May of 1909, Dr. Osler visited Baltimore for the fourth time since leaving for Oxford in 1905. He spoke at the Hopkins Historical Club and participated in the dedication of the new Medical and Chirurgical Faculty building. On all of his trips to Baltimore he participated in the teaching and ward rounds at the Johns Hopkins Hospital. On May 8 he gave a clinic at which his discussion was recorded verbatim.

CASE 1.

J. E. (J. H. H. #24009) a 10 year old boy was first admitted to the hospital on April 25, 1908, complaining of bloody diarrhea of six weeks' duration. A diagnosis of amoebic dysentery was established by stool examination, and he was treated with rectal irrigations of quinine. He remained in the hospital for about 10 weeks with only slight improvement. Following discharge, the diarrhea continued, and there was no weight gain over the next 10 months.

On April 13, 1909, the patient developed fever, headache, and cramps of sudden onset. These symptoms persisted over the next few days, and he entered the hospital for the second time on April 20, 1909.

On examination, the temperature was 99°F., the pulse rate 110, and respirations 24 per minute. He was pale and anaemic. The percussion note at the bases was decreased, and the breath sounds were not well transmitted in this area. The second pulmonic sound was louder than the second aortic sound. There was a systolic murmur at the apex and along the left sternal border. The spleen was felt 10 cm. below the left costal margin, and the notch was definitely felt. The liver was felt 4 cm. below the right costal margin. Abdominal examination showed shifting dullness. There were large distended veins over the abdomen.

The erythrocyte count was 4.7 million, the haemoglobin 48 per cent, and the leucocyte count was 10,700. Amoebae were present in the stool. The urine was normal.

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* The original manuscript was found among the papers of the late Dr. Thomas Boggs who was a resident under Dr. Osler at the Johns Hopkins Hospital. I have added the histories and the follow-up data.

The patient had a nightly fever of about 100° F. with a pulse of 100 per minute.

Dr. Osler: You know the case. The question of interest is—is there any causal connection between the amoebic dysentery and the other condition here present?

You see the very large abdomen—perhaps more fullness on the left—the large distended veins—the slight depression above the navel—no shadows. There is a spreading of the lower thoracic zone as if this were a chronic mischief. There is no marked emaciation—no marked evident anaemia.

On palpation—soft everywhere over abdomen till one reaches the left flank, where one comes directly on to a hard object best felt by palpating so—a " dipping " so called.

Of course, much of this dullness in the flanks is fluid—movable dullness—and much of the distention is ascites.

Is this the first attack of abdominal swelling?

Student: It is, sir.

Dr. Osler: Nothing in heart or lungs?

The murmur that you always get in children when the diaphragm is pressed up is audible at the apex. Has this condition, so evident to you all, any relation to the amoebic dysentery?

Student: I think not.

Dr. Osler: Amoebic dysentery rarely has ascites or splenic enlargement such as is here present. I can recall no case of chronic ascites such as this, though splenic enlargement and chronic peritonitis I have seen.

What might cause this ascites?

Student: Portal or vena caval obstruction—chronic peritonitis.

Dr. Osler: Yes, and the spleen itself as an abdominal tumor. This is to be remembered, for a patient may come to you with ascites, and after tapping the large spleen is felt—then, if this is not borne in mind, you might be deceived as to the cause of the ascites.

Leucocytes? Is there a leucocytosis present?

Student: The " white count " was 10,700.

Dr. Osler: Of course a portal phlebitis must be considered, but then pain, great swelling of the spleen, and often haemorrhage from the stomach, are of aid.

Probably we have here two separate maladies: amoebic dysentery and a splenomegaly.

I have placed on the board a classification which may be of interest·

Chronic Splenomegaly

I. Banti's Disease	*a* Simple splenomegaly *b* Splenic anaemia *c* Cirrhosis of the liver
II. Hepatogenous Splenomegaly	1. Simple Cirrhosis 2. Syphilitic Cirrhosis
III. Acholuric Splenomegaly	1. Family form 2. Congenital (Minkowski) 3. Haemolytic
IV. Portal phlebitis & thrombosis	Apart from infantile & typhoid forms, leukaemia & Hodgkin's

Dr. Osler: First Banti's Disease. Do you think this exists?

Student: It is hard for me to say, sir. It has been described.

Dr. Osler: I had the pleasure of talking with Banti not long since and though I cannot concur with all that he says—more particularly as to the pathology—for eye to eye in the microscope I did not see just what he did—I accepted his idea as to the clinical entity of the disease.

An adult—young—in good health—only a spreading of the waist and fullness after meals—Stage I.

Later, a gradual anaemia—red corpuscles, leucopenia, and characteristic haemoglobin. Then slight jaundice, signs of cirrhosis, and ascites.

A primitive splenic disease, for remove the spleen and you cure the disease—not merely relieve the haemorrhages. (Recital case of Dr. Cushing)

A case of a man with jaundice, anaemia, enlarged spleen and ascites I recall—operated on by Dr. Armstrong, of Montreal, five years after the onset of the disease—all the symptoms disappeared—and he even had the hardihood to marry!

This I believe a disease perhaps not to be ascribed to the spleen in the sense that Banti ascribes it—nor do I agree with his pathology. But I do regard it as a disease with primary change in the spleen and anaemia.

Group II deceives much, as one may be so attracted by the spleen as to lose sight of the liver.

Group III should be consoling to the younger men, for you may have

an idea you know all about it, but when you reach the age Dr. Barker and I have, you'll find you don't.

Group III is characterized by a large spleen, slight jaundice, bile in the stools, and acholuria. Minkowski's congenital form—a remarkable form—entire family had jaundice, acholuria, bile in stools, but had good health.

Here, we have had several instances of this congenital form with large liver, large spleen, or both. This group requires working-up—its relation to Hanot's Cirrhosis has not been worked out.

The haemolytic form is interesting. I recently saw such a case with Dr. Widal in Paris. It is characterized by a fragility of the red blood cells —constant destruction of them—pigment is deposited and splenomegaly.

The case which I saw with Dr. Widal showed jaundice, splenomegaly, and fragility of the red cells. You have seen such a case.

Lastly, a much discussed group—with primary portal phlebitis—the walls of the portal vein thickened, often calcified, primary thrombosis, and changes in the liver and spleen. A primary phlebitis of the portal system, dilatation of portal and other veins, endophlebitis, thrombosis, calcification, enlarged spleen, and liver.

What is the outlook in this case?

Student: Doubtful.

Dr. Osler: Of course, it is a question whether drainage or repeated tappings would not aid. He has stood pretty well and the outlook on the whole is pretty good.

Diagnosis: Amoebic dysentery; Splenomegaly. (1)

Follow up: A paracentesis on May 10 yielded two liters of yellow fluid with a specific gravity of 1.008, a protein of 5.5 Gm./1., a leucocyte count of 1000 per cubic millimeter, of which 99 per cent were monocytes.

Following the paracentesis, fluid no longer accumulated, and the patient improved subjectively. He was seen by Drs. Boggs, Thayer, and Futcher, and the following diagnoses were considered: 1) Amoebic dysentery with a liver abscess, 2) Banti's disease, 3) Syphilitic liver and 4) Tuberculous peritonitis.

On May 28, Dr. J. M. T. Finney performed a laparotomy on the patient. The spleen was removed and was found to measure 14 by 8 by 4 cm. It was rather hard, and on gross section showed an increase in connective tissue. No excessive fluid was found in the abdomen. The liver was not described.

The patient recovered rapidly and was discharged on June 8, 1909.

On May 16, 1932, a practicing surgeon wrote from California to inquire for information on the patient. He stated that the patient had had several massive haemorrhages from the gastrointestinal tract necessitating many transfusions. An operation on March 21, 1932, revealed the presence of a gallon of straw colored fluid in the peritoneal cavity. No source of bleeding was found in the stomach or duodenum, and the final opinion was that he was bleeding from esophageal varices. He continued to bleed profusely and died on March 28, 1932. An autopsy performed through the abdominal incision showed that the liver was atrophic, but there were no nodules. Unfortunately, no sections were taken and no exploration of the esophageal area was made.

Case 2.

H. M. (J. H. H. #24066) a 38 year old boilermaker came to the hospital on May 3, 1909 complaining of paralysis of the legs of three weeks' duration.

He thought he had malaria several times as a child, but was relatively well until one and one-half years prior to admission when he first noticed dizzy spells lasting for less than an hour and associated with weakness in the legs. The weakness would persist for about a day after each attack. Four months before admission he had two particularly severe attacks associated with dyspnea and leg weakness. Three weeks before admission he experienced rather severe dyspnea and went to bed for a week. One week before coming to the hospital, while sitting in a chair, he had a sudden peculiar pain in the abdomen and found that his legs were weak and would no longer support him. There was no leg pain. Two hours later he noted that his legs were blue, but he did not come to the hospital for a week.

Examination showed that his pulse was irregular with rate of 100 per minute. There was a coarse leathery friction rub in the left axilla. The percussion note was diminished below the left scapula with dullness at the left base. The breath sounds were distant in this area. A few moist rales were heard.

The heart was slightly enlarged; the rhythm was irregular; the first sound at the apex was accentuated. There was a loud systolic murmur at the apex transmitted to the left base. There was thought to be an occasional presystolic rumble. There was a loud pleural-pericardial friction rub. The liver was not enlarged. The femoral pulsations were present on both sides, but were diminished on the left. Below the knees, there was a sharply

defined irregular line, below which the skin had a smoky purple discoloration. There were several large blebs over the legs. Sensation, muscular power, and pulsation in all arteries were absent below the line of demarkation.

The Wasserman reaction was positive.

Dr. Osler: Here's a remarkable picture!

Is pulsation present? Has it been noted in either extremity? Has anything been found in the abdomen?

I can feel pulsation in one, but not in the other iliac artery.

How long have there been cardiac symptoms?

What is the state of his arteries?

Student: Thickened wherever felt—in places even calcified.

Dr. Osler: Has he had lues?

Student: There is nothing in the history, but a positive Wasserman reaction was obtained.

Dr. Osler: A remarkable case—look well—it will be many years before you'll see another like it.

What might cause this?

Student: Thrombosis or embolism.

Dr. Osler: Why embolism? Well, because of the cardiac condition, and because of other cases here, both were embolic.

What other causes?

Student: Raynaud's Disease.

Dr. Osler: Why Raynaud's—Well, one must think of it for this is much the picture. A thrombus with an endarteritis.

What conditions of the aorta itself?

Student: Aneurysm or pressure.

Dr. Osler: An aneurysm and endarteritis of the aorta itself may cause it as, too, a valvular lesion.

He has had no fever?

Student: Yes, some.

Dr. Osler: Is the line of demarcation showing more clearly? Any tendency to come up?

Student: No special change has been noted.

Dr. Osler: You should all see this case—it is a very rare condition and

you'll go many years before you'll see gangrene of both legs, for, though unilateral gangrene is common, bilateral is excessively rare.

I have specimens to show of the other two cases we had here. Specimen I is from a woman. She had multiple thrombi with valvular lesions—mitral and tricuspid stenosis, and narrowed aortic ring. It all began with an embolus of her left popliteal—we thought she would lose her leg, but she didn't. A year later, there occurred embolism of the left subclavian artery with swelling of her face and arm. This bothered us, but she did well at first. However, she died suddenly a few weeks later.

Section showed the jugular and subclavian on the left were cord-like, but canalized. The left popliteal was thrombosed, and in the aortic arch there was a fresh thrombus, probably embolic. This is a type associated with chronic heart disease.

The other case is another variety—A young girl, admitted here in 1904, with irregular fever, pain, etc. Suddenly, in December, she cried out with pain—no pulse could be felt in the legs, and signs of venous stasis were present in them. She died two days later, and we found an embolus at the bifurcation of the aorta.

A very rare condition this—three cases in twenty years!

The outlook for this patient is poor—the line of demarcation may stop, and amputation may save him, though the aorta may become implicated higher up.

Diagnosis: Gangrene of both legs.

Course: The patient contiued to have a nightly fever. The basilar dullness and rales increased. The line of demarcation ascended, and the femoral pulsations disappeared completely. Pain in the umbilical region developed, and he died on May 18.

Case 3.

D. M. (J. H. H. #23992) a 45 year old blacksmith entered the hospital on April 17, 1909, complaining of headache and back pain of 6 days' duration. The patient had had a previous admission from November 9, 1908, to January 9, 1909, for typhoid fever, which had been diagnosed by a positive blood culture, and had been associated with rose spots, moist rales over both lung fields, and an enlarged liver and spleen. Recovery had been uneventful, and he had returned to his work as blacksmith. He had worked full time for 7 weeks, but on March 15, because of severe back pain he had to stop. He noticed that the pain was not constant, lasted from 15 to 20 minutes at a time, and was worse at night.

Examination was not remarkable except for a rigid lumbar spine. Motion of the spine caused pain.

The erythrocyte count, haemoglobin, and leucocyte count were normal. An x-ray of the spine was reported as showing " complete ossification of both lateral ligaments around the lumbar spine and also suggests the same condition in the anterior ligaments."

Dr. Osler is handed x-ray plate.

Dr. Osler: Well, you see there are always things you can learn—for instance, these x-ray plates. Dr. Boggs, come and interpret for me.

I have always been struck by the presence of organic mischief with the typhoid spine. But one often sees cases where no organic change is present.

John, in a shocking state, just over a long siege of fever—lying in agony—he cannot move the bed clothes or do a thing without howling. His family all are gathered about the bed bemoaning poor John's fate. The visit of an optimistic physician and he picked up his bed and walked. I saw such a case on North Avenue.

Most such cases I regard as neurosis, pure and simple, though perhaps some are organic—if you will let the x-ray convert you. This x-ray plate seems to show a definite bony change—but most cases have not the typhoid bone condition—osteomyelitis—as most of them get well, whereas typhoid osteomyelitis cases do not.

Diagnosis: Typhoid Spine. (2)

Follow-up: The patient was fitted for a low back support and was allowed to return home on June 8, 1909.

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THE ILLNESSES OF THE GREAT AND NEAR-GREAT

Apropos of *Medical Biographies: The Ailments of Thirty-three Famous Persons*, by Philip Marshall Dale, M. D. University of Oklahoma Press, Norman, 1952. Price $4.00.

VICTOR A. McKUSICK

Study of the illnesses of the great and near-great is probably a legitimate part of both medical history and general history. In medical historiography such study is useful as an indication of the medical practices of the time and of the state of nosology, that is, the description, understanding, and classification of disease. One might cite many examples of famous patient-doctor relationships which reveal the status of the physician in various periods of history. Famous persons, royal and otherwise, have not been exempt from the blood-letting, polypharmacy, purgation, and crude surgery of their less well favored contemporaries. The development of nosology can be illustrated by, to choose one example, gout and stone (of the urinary tract), to one or the other of which all manner of symptoms were attributed in past centuries. Although there was probably a truly higher incidence of these diseases in the past, a multitude of not then described disorders were almost certainly assigned to the same scrap-baskets. (There is reason to conclude that there is a relationship between gout and urinary stone; the decline in incidence of both may be a reflection of this alliance. Several famous persons, such as Pepys, Franklin, and the physician Sydenham, seem to have had *bona fide* affliction by both diseases. Erasmus wrote to Thomas More: "You have renal calculi and I have the gout. We have married sisters!") The course of medical history has been influenced, sometimes favorably, sometimes most unfavorably, by the illness of persons who had captured public interest. Illness in such persons may stimulate investigation of the causes and treatment of the disease. Roosevelt's poliomyelitis is a familiar case in point. A comic example was Louis XIV's fistula-in-ano which precipitated a veritable epidemic of fashionable ailments of the *derrière* in the French court.

On history in general the influence of illness has frequently been an active one which operates by shaping the personality of the individual or by altering his effectiveness or, completely unproved, by stimulating his genius. Or the influence of illness may operate passively, though more obviously, by removing the actor from the stage at a critical point in

history. The course of history in this century might have been quite different if the democratic, Anglophile son-in-law of Queen Victoria, Frederick III of Prussia, had not been carried off by cancer of the larynx in 1888. A withered arm may have participated in molding the personality of his infamous son, Kaiser Wilhelm II.

The students in this field of historiography have generally been physicians who found in it an agreeable pastime. An Australian, C. McLauren, wrote *Post Mortems* (1922), *Mere Mortals* (1925), and *Post Mortems of Mere Mortals* (1930). The most prolific writer was probably Augustin Cabanès (1862-1928), a Paris practitioner who wrote many volumes on this subject including *Les Morts Mystérieuses de l'Histoire* (1923) and *Grands Nevropathes* (1930). Since Cabanès was inclined toward the sensational and scandalous, most of his writings are more anecdotal than either medical or historical. Adolf Braun wrote *Krankheit und Tod im Schicksal bedeutender Menschen* (1934). George Milbry Gould (1848-1922), versatile and prolific Philadelphia ophthalmologist wrote, in addition to a familiar medical dictionary which first appeared in 1890 and (with Pyle) a compendium of curiosities of medicine (1897), a series of *Biographical Clinics* in which he attempted to demonstrate the relationship of eye-strain, astigmatism, and other ocular disorders to personality traits of persons such as Darwin, Parkman, Carlyle, and de Quincey. Lewis J. Moorman (*Tuberculosis and Genius*, 1940) and Erich Ebstein (*Tuberculose als Schicksal*, 1932) attempted to establish a stimulating action of tuberculous infection on the genius of its victim, an interesting but untenable theory. In Paris during the first quarter of this century, medical biography of famous persons was a popular subject for medical doctorate theses. There are a number of book-length medical biographies or analyses of individual illnesses of the great. For instance, Friedman in *The Emperor's Itch* (1940) concludes that Bonaparte probably had *dermatitis herpetiformis* and not *scabies* as has been frequently suggested. In this same category is Cabanès' *Marat Inconnu* (1920). In addition to the general medical periodicals, the journals of medical history, particularly the now defunct *Annals of Medical History*, have contained numerous individual studies. As indicated by its sub-title *La Chronique Médicale* (*Revue Mensuelle de Médecine Historique, Littéraire et Anecdotique*) of which Cabanès was editor and which was published in Paris from 1894 to 1932 contained much material of the general type under discussion here. The autobiographical and other writings of famous doctors provide discussions of the illnesses of some of their illustrious patients, for example, W. W. Keen's *The Surgical Opera-*

tions on President Cleveland (1928), Ross MacIntyre's *White House Physician* (1946), Sir Morrell MacKenzie's *The Fatal Illness of Frederick the Noble* (1888). Some of these are essentially *apologiae.*

It is recognized that the teaching of clinical medicine is given added fascination and a helpful mnemonic touch by the use of references to the illnesses of famous persons. Few have used this technique more extensively than did Dr. William H. Holmes in his textbook *Bacterial and Rickettsial Infections* (1940). His description of the fatal attack of typhoid fever of the Prince of Wales, son of James First of England, leaves the student with epidemiologic and clinical features of this disease he will not soon forget. The Prince ate heavily of his favorite oysters from the Thames estuary. The clinical course of the illness was carefully described by his physicians. This technique seems particularly useful in the teaching of psychiatry. Clifford Allen made use of it in his *Modern Discoveries in Medical Psychology* (1937). (Hamlet: "It shall be so: Madness in great ones must not unwatch'd go.")

A few individuals have attained fame as a result of the courage with which they faced their illnesses and created general understanding and sympathy for their disease by the clarity with which they described it for the public. Helen Keller with her deafness and blindness from the meningitis she had at an early age and Clifford W. Beers with his manic-depressive psychosis (*A Mind That Found Itself*, 1908) are examples.

Some have decried the fact that more often than not the patient has been forgotten in accounts of medical discoveries. Notable exceptions are Joseph Meister, who was, as a boy, the first patient saved from rabies by Louis Pasteur and later doorman at the Pasteur Institute of Paris for many years; Alexis St. Martin, who had an accidental opening of the stomach utilized by Beaumont in the study of the physiology of that organ; Jane Todd Crawford, on which Ephraim McDowall, Kentucky frontier surgeon, performed the first successful operation for ovarian tumor. Diseases and clinical signs of disease are usually named for doctors rather than any of the unfortunate patients who suffered from them. An almost unique exception is found in de Musset's sign, a conspicuous bobbing of the head with each heart beat in a particular type of "leaky heart valve" to which Alfred de Musset (1810-1857) succumbed. Syphilis probably produced the damage of the valve in the case of the French poet whereas rheumatic fever—he had had several attacks of "flying gout," as he termed the migratory polyarthritis—was responsible for the valvular heart disease of Robert Burns.

Philip Marshall Dale, seventy-year-old practicing Los Angeles physician, has written thirty-three essays on the illnesses of an equal number of great and near-great persons. Since they are intended primarily as pleasant reading for laymen, medical jargon is largely avoided. The increasing medical sophistication of the general public makes such a presentation possible and one would anticipate for it a larger audience than any of its predecessors has enjoyed.

So limited is information about some of the subjects—Buddha, William the Conqueror, Columbus, and others—that the essays are more biographical than medical. In the case of others, such as Henry VIII and his syphilis, Pepys and his bladder stone, Napoleon and his cancer of the stomach, there are enough details on record to permit, with a modicum of induction, a fairly clear picture of the illness in question.

A few, but only a few, of the essays have suffered from the author's apparent lack of familiarity with previous writings on the subject and some original source material. It is difficult, for instance, to improve on the heavily documented and carefully analytical study of the manic-depressive psychosis of George III in *America's Last King* (1941) by the Baltimore psychiatrist, Manfred Guttmacher. Following previous writers Dale pronounces Guy de Maupassant's insanity paresis (syphilis of the brain) but does not present the evidence, such as the pathognomonic changes in the pupils discovered several years before frank madness ensued.

Most of the diagnoses arrived at by Dr. Dale impress the reviewer as probably accurate. Few, perhaps none, are original with the author, however. The autopsy surgeons in the case of Napoleon reported that "the internal surface of the stomach to nearly its whole extent was a mass of cancerous disease . . . : This was particularly noticed near the pylorus. The cardiac extremity for a small space near the termination of the oesophagus was the only part appearing in a healthy state." Dale is of the opinion that Bonaparte died, not of cancer of the stomach, but of peptic ulcer with perforation and hemorrhage. He dismisses the autopsy report by stating that "the science of pathology was in its infancy in their time." The reviewer is inclined to believe that pathology was not so infantile but that the five doctors who signed the report would have known cancer of the stomach when they saw it.

The death of Robert Louis Stevenson, who suffered from pulmonary tuberculosis most of his forty-four years, is attributed by Dale and many before him to cerebral hemorrhage. At supper-time, while happily preparing a salad, Robert Louis Stevenson was suddenly seized with a severe pain in the head, immediately lost consciousness, and in two hours was

dead. The description suggests the rupture of a tiny congenital aneurysm on one of the arteries at the base of the brain and not necessarily antecedent hypertension as suggested by Dale.

In addition to the "cases" selected by Dr. Dale, there are, of course, a great many well-documented medical records of historically significant individuals. Some are better documented than most the author chose to discuss. One of the most detailed of clinical records is that concerning Louis XIV of France. Every illness in the course of the seventy-seven years of his life was described in great detail by the successive court physicians—Vaultiers, Vallot, D'Aquin, Fagon—in *Le Journal de la Santé du roi Louis XIV*. The Journal reads like the voluminous record of a patient who has had numerous admissions to one of our large teaching hospitals. It takes the Sun King from the cradle (he was born with teeth, a considerable vexation to his wet-nurses) through the common childhood illnesses and typhoid fever to the afflictions of the prime of life (ascariasis, fistula-in-ano, urinary stone) and finally to the degenerative conditions of advancing years. These records are most instructive both in their vivid descriptions of disease and in the picture they provide of medicine in *le siècle le plus poli*.

As interpretation of medicine for the public Dale's book may serve a useful purpose, if not by illustrating the important role post-mortem examinations have played and will continue to play in the advancement of medical science and practice, at least by indicating the frequency with which such examinations were performed. Autopsies were performed in the case of at least five of the thirty-three—Napoleon, Walt Whitman, Garfield, Frederick III of Prussia, and McKinley. The famous German pathologist Virchow performed the autopsy in the case of Frederick III. Other famous autopsies of history include those performed in the cases of Henry II of France who died in 1559 eleven days after a head injury sustained in a tournament, Henry of Navarre in whom a bullet, which inflicted a fatal wound of the shoulder, passed down the marrow cavity of the humerus, George II of England, who died ignominiously on the toilet from dissecting aneurysm of the aorta, Sir Joshua Reynolds, Dr. Samuel Johnson, Beethoven, Lord Bryon, Daniel Webster, the capacity of whose cranium elicited great comment, and Emile Zola, who succumbed to accidental carbon monoxide poisoning.

If any conclusion can be drawn from this collection of very readable essays, it is probably that epitomized in the world's shortest poem:

Adam
Had'em.

MEDICO-HISTORICAL NEWS AND ACTIVITIES

ANNOUNCEMENTS

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

Annual Meeting 1956

April 19-21 has been designated as the date for the twenty-ninth annual meeting which will be held at Durham, North Carolina.

Awards of Medals 1955

THE WILLIAM OSLER MEDAL for the best student essay submitted was awarded to: Mr. E. Edward Bittar, Yale University School of Medicine, for his essay entitled "A Study of Ibn Nafis." Honorable mention, with one year's subscription to the *Bulletin*, went to: Dr. Lee Miriam Hiller of the University of Wisconsin Medical School, for her essay, "Towards a Definition of Hysteria: Concepts of the Disease in the Late Nineteenth Century," and to Mr. Bradley E. Brownlow of Western Reserve University Medical School for his essay on "Doctor McKay's Investigation of Mottled Enamel: A Contribution of a Practising Dentist to Science."

THE WILLIAM H. WELCH MEDAL was not awarded this year.

NATIONAL NEWS

Kansas University School of Medicine

The D. C. Guffy prizes for the best student papers on subjects pertaining to the history of medicine were awarded to: Ronald Chen, first prize of $100 for a paper on the history and methods of physical diagnosis in Chinese medicine: Cleve S. English, second prize of $50 for a paper on the development of our present knowledge of coronary artery disease; Dean T. Collins, third prize, a copy of Dr. Major's *History of Medicine*, for his paper on the development and present status of the surgical treatment of mental illness.

Dr. Ralph H. Major, professor of medicine and of the history of medicine as well as chairman of the department of the history of medicine, will become emeritus professor on July 1, 1955. Dr. Major was President of the American Association of the History of Medicine, 1950-1952.

New York

On May 10, 1955, during the 149th annual meeting of the Medical Society of the State of New York, a session on the history of medicine was held under the chairmanship of Dr. John R. Paine of Buffalo. The topic was "Early Medical Education in Western New York," following a similar session the year before on the medical schools of New York City. At Buffalo, Dr. Irving Wolfson spoke on the influence of the Erie Canal on the development and spread of medical practice in upstate New York. Medical education in Albany was discussed by

Dr. Emerson C. Kelly. The history of the Syracuse University Medical School was narrated by Dean William R. Willard. Mrs. Betsy C. Corner presented a paper on the history of the medical school of Geneva (now Hobart) College, which had the distinction of graduating the first woman physician, Elizabeth Blackwell; and of the Eclectic Medical College at Rochester. Dr. Eliot B. Hague told of the organization and early history of the University of Buffalo Medical School. The meeting was attended by about sixty persons.

Oklahoma

Friends of the late Dr. Lewis J. Moorman have established an award in his memory to honor young scholars at the University of Oklahoma who show competence in the use of archival source materials in the history of medicine and related fields in Oklahoma. The award, open to undergraduates as well as graduate students at the University of Oklahoma, is to be made biennially and consists of a $50 savings bond as the first prize. For additional details see *J.A.M.A.*, vol. 158, May 21, 1955, p. 204.

Philadelphia

Mr. Charles W. David, Director of Libraries, University of Pennsylvania, announces that the Edgar Fahs Smith Memorial Collection in the History of Chemistry has been moved to Room 420 of the Hare Building, University of Pennsylvania, 36th and Spruce Streets, Philadelphia 4, Pa., and that it has been reopened for services. As of July 1, a half-time custodian will be appointed. Miss Eva V. Armstrong, the Corresponding Secretary, will also be in the Smith Library on Wednesdays between the hours of 11 a. m. and 3 p. m. Communications should now be addressed to the Edgar Fahs Smith Collection at the address given above. Dr. Claude K. Deischer has been appointed Acting Curator and he may be reached at the Johns Harrison Laboratory of Chemistry, University of Pennsylvania, 34th and Spruce Streets, Philadelphia 4, Pa.

Death

James F. Ballard, Director of the Boston Medical Library, died suddenly on May 15, 1955. Mr. Ballard was a pioneer in the field of medical librarianship. He will be best remembered by medical historians through his *Catalogue of the Medieval and Renaissance Manuscripts and Incunabula in the Boston Medical Library* (Boston, 1944), describing a collection to which he had devoted many years of his life.

NEWS FROM ABROAD

Chile

The progressive interest in the history of medicine and an increasing number of publications in this field have led to the foundation of the Chilean Society of the History of Medicine. Enrique Laval is president and Claudio Costa secretary of the Sociedad Chilena de Historia de la Medicina, Casilla 2609, Santiago, Chile.

BOOK REVIEWS

ROBIN FÅHRAEUS. *Läkekonstens Historia: En Oversikt* (History of the Healing Art: A Survey). 3 Volumes. Stockholm: Albert Bonnier, 1944-1950. 336, 411, 417 pp. Ill.

One of the many works in the Swedish series of books on Medicine of our Time (Vår Tids Medicin), this is a delightful history of medicine by an author who himself is part of that history. "In 1918 Fåhraeus, while seeking an early test for pregnancy, discovered that the suspension stability of blood is altered in pregnancy, but he found that the speed of sedimentation is also accelerated in many diseases. A test was thus discovered which because of its simplicity and its wide applicability, soon became very popular."[1] (From *Clinical Hematology* by Maxwell M. Wintrobe, Philadelphia, 1947). The grayish-white layer of fibrin and leucocytes observed in the settled blood from venesection of some fever patients continued for centuries to occupy the attention of physicians and was referred to as "crusta inflammatoria," "buffy coat," "chicken fat." "size," "späckhud," the last being a Swedish term. Venesection was then performed to rid the system of this noxious substance.

In 1924 Prof. Fåhraeus wrote an account of the various speculations concerning blood and other body fluids down the ages—*Blodet i Läkekonstens Historia* (The blood in medical history). The present work, in three small volumes, was received with great enthusiasm by the Scandinavian world, both lay and medical. Men such as Professor of Medicine O. T. Hult of Stockholm, Dr. Erik Waller, surgeon and famous collecetor and owner of rare books on the history of medicine, and Professor Knud Faber, Denmark's Grand Old Man of Medicine, are unanimous in their admiration of the style—which turns poetic as often as not—and the illustrations which are numerous, and many of them unusual, such as several by Daumier, that Michelangelo of caricature. Dr. Waller voices his feelings by stating that the Swedish nation is in possession of a masterpiece which could profitably be given to the world in one of the five "understandable" languages.

The most valuable part of the story is probably that which deals with ancient Greek medicine, and which gave the author a clue to his discovery. This reader has never read such a lucid explanation of why the theory of the four humours was so workable that it endured for centuries.

For the Middle Ages and Modern Times the approach is largely biographical, but at the same time the author confines himself to broad outlines so as to give a connected story of the main trends in the development of the healing art. As is to be expected—and a welcome addition it is—the contributions to medicine by the northern countries, especially Sweden, are dealt with more fully than in general medical histories.

Dr. Robin Fåhraeus, Professor of Pathology at the University of Uppsala, comes of a distinguished family, numbering statesmen, artists and writers among his forebears. His father was a well known art critic and collector, writing a history

[1] The findings were published in Acta Medica Scandinavica, Vol. LV, 1921.

of art and contributing to Swedish and European art journals. In his youth Robin Fåhraeus was a member of an expedition excavating in Greece. This led to a lifelong love and interest in *was Griechisch ist,* so that when he retires he plans to return to his Greek studies.

ANNE TJOMSLAND

JOHN PRECOPE. *Medicine, Magic and Mythology.* London: William Heinemann Medical Books, Ltd., 1954. vi + 284 pp. Ill. 42 shillings.

Since this book was published by William Heinemann one is not surprised at the high quality of the paper, the purity of the type style, nor at the beauty of the binding in red cloth lettered in gold.

The author, known for a previous work in the field of the history of ancient Greek medicine (*Hippocrates on Diet and Hygiene,* 1952), had his degree of Sc. B. from Paris in 1908, was M. R. C. S. and L. R. C. P. in London in 1913, was Doctor of Medicine in Athens in 1932, and was late honorary physician to Charing Cross Hospital.

At the beginning the author states that the Alpha and the Omega, the beginning and the end, always have stirred man's imagination and interest. He adds that those scientists who have devoted their larger interests and energies toward the elucidation of the Alpha have rendered very valuable services in revealing to us the mysteries of the past, but also have forged perhaps the only possible key which will unlock the mysteries of the future.

Few intelligent persons will deny this, especially among historians and very especially among the historians of science and the historians of medicine. In the view of Burnet, the English historian of philosophy, Thales of Miletus brought into the world a new thing, and the new thing was science. In the context this means rationalism, as against irrationalism. It is the conviction of this reviewer that an intelligible concept of medicine and its history depends basically upon the historian's ability to discriminate between, on the one hand what we today conceive to be medicine, and what, for something more than three millenia, our predecessors in this art have conceived to be medicine; and on the other hand the hopeful wound-dressings, incantations, sorceries, and hocus-pocus that still today in some quarters are thought to be the practice of the healing art. The discrimination ultimately must be finely drawn between rational medicine and irrational. One ultimately must make the decision whether Hippocrates (or what is represented by that name) were only another Asclepiad curing by means of serpents experienced during a drugged slumber, or a physician in the best contemporary sense of the word; whether Chiron were a centaur possessed of powers half-divine (or half-mythologic), or a capable Thessalian tamer of horses who also had knowledge perhaps hereditary and skill probably founded upon instruction and practice, together with a goodly quantity of experience and judgment.

It is always interesting to know that the Incas and the men of neolithic times were reasonably skilled at trephining the skull. But it is of utmost moment to know whether these peoples trephined the skull with the purpose of ligating a bleeding vessel or with the purpose of letting a demon out of the patient's head. And granted that trephination reduces intracranial pressure, did these peoples

know this? The reason *why* the operation was performed makes all the difference when we come to distinguish between medicine and magic.

The very title of this fine volume tells (as a title ought to tell) the prospective reader what he may expect. It is the tale of irrational pre-Hellenic medicine and of irrational Hellenic medicine—and both of these, as the author shows in numerous passages, persist in many, perhaps in most, parts of the world still. The work, then, is a valuable help when we must distinguish between rational and irrational medicine. More than this, it is book of immense interest, completely adequate in testifying to the author's wide knowledge of preclassical and classical Greek civilization, and also to his apparently equal knowledge of the customs of ethnic groups which are contemporaneous, or nearly so, with ourselves.

Referring to the Greeks of antiquity, perhaps it is not unfair to suggest that the irrational has been stressed at the expense of the rational. This has been a fashionable occupation recently. Of course no informed person would deny that irrationalism persisted in even the highest phases of classical civilization and culture, nor that it exists today in the most concentrated centers of our mid-twentieth century scientific civilization. Nevertheless, there are many urgent reasons for thinking that Greek medicine was characteristically rational during the times of which Homer was writing—say 1000 or even 1400 B. C. There are cogent reasons for thinking that the cult of Asklepios arose after 800 B. C.—and this is two to six centuries later than the times of which Homer was writing. In the opinion of capable archeologists, the oldest ruins of temples of Asklepios cannot be dated earlier than 525 B. C. In Homer, Asklepios is a man; only in the lyric poets, at a period later by centuries, is he a god. Again, it can be shown that Alcmaeon of Crotona did not learn, and could not have learned, any medicine from Pythagoras, a half-mystic, a teacher of the doctrine of metempsychosis; and indeed that the school of medicine of Crotona was well established and had had a long and illustrious history before Pythagoras took refuge in the Italian city. And, speaking of Crotona, Democedes was no magician and no priest, nor was Ctesias.

It is true that Socrates, on his death bed, requested his friend to sacrifice a cock to Asklepios, a duty which he himself had forgotten to discharge. But from all that we know of Socrates it is quite evident that he was only acceding in a matter of taste. And although Plato called Hippocrates an Asklepiad, it does not follow that Plato meant that he was therefore a magic-monger or a priest: all that we know of Hippocrates Plato must have known, and all that Plato says of physicians points to the contrary. In short, the present reviewer is inclined to think that Dr. Precope has not given an entirely fair account of classical medicine.

This criticism, however, is not entirely fair on its own. The field of classical medicine has been rather thoroughly ploughed during the last several centuries, and certain notions have become traditional. One of the greatest merits of the book is precisely that it brings to light some aspects of Greek medicine which have been quite cordially neglected by many writers in the past. It is well and fitting and timely to revaluate many of our traditional concepts. In this sense the author of this fine book has performed a service which merits our gratitude. For the layman, on the other hand, the work may create some false impressions. Since the book is unusually rich in quotations from the original Greek, many of which have been left untranslated by the author, one must assume that it was not written for the layman, at least for the average layman. But for the historian of medicine it is

indispensable. It gives the complement to Hippocrates and to all that name represents. Unfortunately, some of the references to the sources are incomplete, and not a few have been omitted altogether; this will make things difficult for the scholar to begin further investigation of certain fields of the subject.

For reasons unstated, and which may be only surmised, the book was printed at the Zavallis Press of Nicosia, in Cyprus. Perhaps this explains certain imperfections in the text. For one thing, the index contains an occasional erroneous reference. For another thing, the author (or editor) found himself under the necessity of composing a list of errata in the English text, which list includes, however, only a minority of the actual errors in printing. Some of these errors give very curious readings, *e. g.*, on page 51 we read "Zeus begats a bull"; on page 125, "Agamemnon ascents"; on page 191, "It was also regarded as curative of certain diseases," the "it" having no antecedent, so that the sentence is meaningless.

There is also a list of errata in the Greek text, and this list also is incomplete, *e. g.*, on page 102, ΗΛΙΑΔΟΣ for ΙΛΙΑΔΟΣ; on page 105, Απολλόδορος for Απολλόδωρος; on page 103, in the quotation from Hesiod, κατῆεν for κατῆεν and 'Αιδόσθε for 'Αιδόσδε; and others.

On page 57 the term "immaculate conception" is misused in a way which is unpardonable.

These errors, excepting the last, do not however, impair the usefulness and value of the book. In many places it contains descriptions of the most engaging kind, such as the diversion upon the dress of women beginning at page 202, and that upon the weather at page 207. It would be difficult to get these things together, and we may be happy that Dr. Precope has done it for us so well.

G. Kasten Tallmadge

Helen Buckler. *Doctor Dan: Pioneer in American Surgery.* Boston: Little, Brown & Co., 1954. xviii + 381 pp. Ill. $5.00.

The qualities that make for greatness are subtle and difficult of analysis. What are the forces that enable, or perhaps compel, certain persons to rise above their environment and to achieve exalted station despite all handicaps and difficulties, while their fellows, more fortunately endowed by far, barely manage to stand out from the common herd? The life of one such individual is chronicled in the biography entitled, *Doctor Dan,* by Helen Buckler. It is the story of Daniel Hale Williams, a Negro doctor, who pioneered in the field of thoracic surgery, became a leader in providing opportunities for medical and nursing education for his people, and won the respect and esteem of the entire medical profession.

Dr. Williams was of mixed ancestry, which included Indian, as well as Negro and Caucasian stock. His family had always been "free," and his forbears were people of means and standing. He is described as a handsome man, with fair skin and red hair, who might easily have "passed" as white, but who chose to identify himself with the Negroes and who devoted his entire life toward their welfare. He arose from humble beginnings as a barber's apprentice and became a bold and skillful surgeon. He was among the first to successfully operate upon the human

heart. Concerned with the virtual absence of opportunity for the training of Negroes in nursing and medicine, he conceived and brought to fruition, the idea of interracial hospitals. He founded the Provident Hospital in Chicago, the first of its kind, which became the prototype of numerous other institutions throughout the country for the care of Negroes and the training of Negro medical personnel. He was a charter Fellow of the American College of Surgeons, the first vice-president of the Negro National Medical Association, and a highly successful and influential surgeon.

A second theme permeates the story, a theme of bitter hatred, not by white people, but by members of his own race. He had been appointed Director of the Freedmen's Hospital in Washington, by President Cleveland. When he returned to Chicago, following a change in the national administration, charges of malfeasance were brought against Dr. Williams. His trusted assistants who had been trained and appointed by him, testified against him. While the investigation came to nothing, Dr. Dan was cruelly hurt by the ingratitude and perfidy of those he had called his friends. In a similar fashion, malignant enmity developed in the Provident Hospital which he had founded and fostered, culminating in his being forced out of the institution. While he continued to have a busy surgical practice in a non-Negro hospital, his spirit was crushed, and he ended his days in relative obscurity, fulfilling the malediction that had been heaped upon him, that he would be " forgotten before he was dead." Nonetheless, the love for his people lived in him, and he bequeathed his estate to Provident Hospital and other Negro institutions.

Miss Buckler has done prodigious research into the life and times of Dr. Williams, and the book is richly documented. She presents a vivid picture of medical education at the end of the last century, and describes the transition period in surgery from the pre-antiseptic to the modern era. She has steeped herself in the background of Doctor Dan, and deals with the Negro people, not with tolerance, but with sympathy and understanding. The subtle relationships between Negroes of varying complexion and origin, so obscure to the white observer are very well handled. I have discussed this book with Negro surgeons who were part of it, and they praise the work for its factual honesty as well as its sensitive interpretation.

LEO M. ZIMMERMAN

J. M. MUNRO KERR, R. W. JOHNSTONE, and MILES H. PHILLIPS (editors). *Historical Review of British Obstetrics and Gynaecology, 1800-1950*, Edinburgh and London: E. & S. Livingstone Ltd. (Baltimore: The Williams & Wilkins Co.), 1954. viii + 420 pp. $6.75.

Here today's most distinguished British obstetricians and gynecologists review the achievements of their compatriots over the past century and a half. It is a proud record which they review, but it is chiefly a record of Nineteenth Century achievement. The last of the long line of outstanding British contributions to pelvic anatomy, the description of reproductive mechanisms, and the solution of mechanical problems were made during the last century. It was the final flowering of the grand tradition of British Obstetrics and Gynecology, during which Obstetrics threw off the last vestiges of midwifery to become an art and science, and pelvic surgery became a triumphant reality. After this, the glorious pioneering days

of clinical Obstetrics and Gynecology were over. Today, it is the laboratory worker rather than the clinician who is at the frontiers of progress. This is not to say that present-day British obstetricians and gynecologists are less worthy of our esteem than their illustrious predecessors. Their conservatism, sound judgment, and open mindedness provide a shining example for their colleagues in other countries.

This book, presented to the Royal College of Obstetricians and Gynecologists on its Semi-jubilee, was written as a sequel to H. R. Spencer's *History of British Midwifery, 1650-1800,* published in 1927. Now we possess an easily available review of three centuries of British achievement in Obstetrics and Gynecology. The challenge to compare these two volumes is irresistable, even if it were not virtually demanded by the editors of the second volume.

The two books approach the problem of reviewing 150 years of national progress in medicine in opposite manners. Spencer's method, utilizing in the main the biographical approach, is perhaps the better for presenting a nationally limited review of progress. He could hardly have failed to write an interesting volume, with such fascinating subjects for biography as William Harvey, the Chamberlens, Fielding Ould, Smellie, William Hunter, John Burton (Sterne's infamous "Dr. Slop"), Charles White of Manchester, and Thomas Denman. The current editors have chosen to write a general review divided into 50-year periods, together with numerous chapters on special subjects. This method provides a more integrated picture of progress but is more difficult to confine within narrow national limits. On the other hand, one regrets the lost opportunity to review the careers of such intriguing personalities as Sir Richard Crofts, Sir James Y. Simpson, Matthews Duncan, Lawson Tait, Braxton Hicks, John Ballantyne of Edinburgh, and Donald and Fothergill (the fathers of the Manchester operation).

As a historian Spencer is more successful. Our current editors motivated, no doubt, by the desire to complement Spencer's book exactly come right up to the present where there can be no perspective. Moreover, there is something in the style of the current volume more reminiscent of textbook than history. The facts are collected here, but the stuff of history often is not. Of course, the tremendous expansion of the specialty during the Nineteenth Century, and the fifty years since, make the task much more difficult than it was for Spencer's era of review. The story of the development of cesarean section, for example, one of the most fascinating in medicine in the past hundred years, seems almost cut and dried as it is presented here. On the other hand, many contributions of British Obstetrics which have become obscured in the dust of time are recalled to light. In this connection, it is interesting to note how clearly x-ray has proved the correctness of many of Smellie's observations on the mechanism of labor.

The textbook atmosphere is most apparent in the Special Subjects and Gynecology Sections. Here some of the numerous authors have made no pretext of writing an historical review. They have rather presented a textbook version of current ideas and therapy. On the other hand, valuable historical information is collected concerning obstetrical societies and journals, medical and midwife teaching, and the development and improvement of midwife services. F. J. Browne has well described the initiation and development of antenatal care which is perhaps the greatest clinical contribution of the Twentieth Century to Obstetrics. Here, John Ballantyne of Edinburgh gets the recognition he deserves as the father of fetal and neonatal pathology and the instigator of prenatal care.

The editors of this volume have done a difficult task well. They have picked out the strands of national progress from a snarl of personalities and divergent opinions and integrated them so well with international progress as to avoid all insularity. Obstetricians and gynecologists as well as medical historians will be grateful to them for providing us with a useful reference work as well as an entertaining history.

GEORGE W. CORNER, JR.

ILZA VEITH (editor). *Perspectives in Physiology. An International Symposium, 1953.* Washington, D. C.: American Physiological Society, 1954. 171 pp. Ill. $3.00.

At the nineteenth International Physiological Congress in Montreal in September, 1953, there gathered a group of distinguished physiologists from the world over to discuss where physiology stood, to recall the path it followed to its present state. and to forecast with justifiable hesitancy the avenues along which its future might lie. These deliberations form the content of this little book. And a valuable commentary it is; not only for the historical facts and philosophical concepts which it records, but even more for the overwhelming proof it offers that physiology derives from the thoughts and work of many persons, and that there are no two of them who think or work alike. There is clear unanimity that what is true is good, but the ways of approaching the truth are legion.

The first section, entitled "Limitations and Future," is devoted to a series of essays of widely varied themes. Adrian draws attention to the number and kind of disciplines which have declared their independence from physiology, while at the same time physiology itself grows. Von Muralt points to the geometric increase in technics derived from sister sciences which has converted the "simple and classical methods of Ludwig and Starling" into a "jungle of knowledge." Best presents his views on the intimate relation of physiology to medicine and sketches the administrative organisation which makes for a productive research milieu. Bykov recounts "A Russian View" which obviously had received the imprimatur of a political censor. Homer Smith examines the philosophical roots of physiology, touching with understanding and erudition on several of the basic imponderables which range from naturalism to holism. Gerard reviews the aims and scope of the current survey of the Physiological Sciences.

The second section, "The Present Scene," contains a series of short essays by 12 leading physiologists who record the development of physiology and its present state of organisation in their own country. The essayists and their nations are Houssay (Argentina), Häusler (Austria), Lundsgaard (Denmark), P. Hoffman (Germany), Stella (Italy), Kuno (Japan), Rosenblueth (Mexico), Liljestrand (Sweden), von Muralt (Switzerland), Peters (U. K.), Gerard (U. S.) and Seliskar (Yugoslavia). These sketches are of extraordinary interest because the long careers of several of the authors brings to their stories the flavor of a first-hand account. Furthermore, they provide some insight into the rank-order of honor with which prophets are held in their own land. The editor addresses fellow-historians in pointing out the value of this collection in furnishing "the basis for a 'genealogy' of modern physiological thought" and a "chronological sequence

of the activity and location of many men who otherwise might be lost in the maze of historical confusion." One cannot be sure that this effort will prevent entirely this common event, but it will go a good ways to help.

JOSEPH L. LILIENTHAL, JR.

MERRILL MOORE. *Verse-Diary of A Psychiatrist: New Sonnets.* Volume Seven, Contemporary Poetry Library Series. Edited by Mary Owings Miller. Baltimore: Contemporary Poetry, 1954. 39 pp. $3.00.

Merrill Moore is a true poet, who can open his readers' eyes to the unsuspected world around and within them. New things stand revealed in the flash of his words. But he is a poet by fits and starts; and if the idea may still be entertained that poetry is the consequence of a divine frenzy, then Dr. Moore should have more fits\but fewer starts. Anything—anything at all—will start him; and nothing, apparently, can stop him. His *recent* volumes of verse include *Clinical Sonnets, Illegitimate Sonnets, Case-Record From A Sonnetorium* and *More Clinical Sonnets.* His genuine poetic impulse has suffered from grandiose dilutions. A Chinese simplicity of statement, with a word cunning and delicacy of ear that are truly marvellous, occasionally subserve a profundity or subtlety or humor that is worthy of them; too often they are corrupted by triviality and poor jokes; what is worse, the ideas are sometimes explained, spelled out. One is moved to wonder, in reading the *Verse-Diary,* why a psychiatrist-poet should seem to be so afraid of poetic imagery; at any rate there can be few books of verse in which images are so infrequent, although those which occur are usually beautiful and exact. Both the lover of poetry and the student of psychiatry will find this slender volume one of interest; both may suspect, however, that sonnets are often discharged from the sonnetorium before the cure is complete.

LLOYD G. STEVENSON

THE BULLETIN RECENTLY RECEIVED *

Maurice Davidson. *The Royal Society of Medicine. The Realization of an Ideal (1805-1955).* The Royal Society of Medicine, 1955. 201 pp. Ill.

Denis I. Duveen and Herbert S. Klickstein. *A Bibliography of the Works of Antoine Laurent Lavoisier, 1743-1794.* With a Preface by John F. Fulton. London: Wm. Dawson & Sons, Ltd. and E. Weil, 1954. xxiii + 491 pp. Ill. £10.10s.

Francis John Halford. *Nine Doctors and God.* Illustrations by Keichi Kimura. Second edition. Honolulu, Hawaii: University of Hawaii Press, 1955. xiv + 306 pp. $4.00.

August C. Krey. *History and the Social Web.* A Collection of Essays. Minneapolis: University of Minnesota Press, 1955. x + 269 pp. $4.00.

Paul F. Russell. *Man's Mastery of Malaria.* New York: Oxford University Press, 1955. xv + 308 pp. Ill. $6.00.

* The *Bulletin* reserves freedom of decision as to the publications to be listed in this section.

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